648-360 to 383

USER'S MANUAL

USER'S MANUAL

CCD BAR CODE SCANNERS

ZB-1000/2000T : LASER EMULATION
ZB-1000/2000R : RS-232C SERIAL INTERFACE
ZB-1000/2000K : KEYBOARD EMULATION INTERFACE

ZB-1000/2000T+ : LASER EMULATION
ZB-1000/2000R+ : RS-232C SERIAL INTERFACE
ZB-1000/2000K+ : KEYBOARD EMULATION INTERFACE

ZB-1200/2200T : LASER EMULATION
ZB-1200/2200R : RS-232C SERIAL INTERFACE
ZB-1200/2200K : KEYBOARD EMULATION INTERFACE

ALPHA-10/20T : LASER EMULATION
ALPHA-10/20R : RS-232C SERIAL INTERFACE
ALPHA-10/20K : KEYBOARD EMULATION INTERFACE

NOTICE

FOR YOUR READING CONVENIENCE, INTERFACE TYPES INCLUDE THE MODELS LISTED AS FOLLOWS:

KEYBOARD EMULATION TYPE CCD SCANNER WITH BUILT-IN DECODER INCLUDE :

ZB-1000K, ZB-1000K+
ZB-2000K, ZB-2000K+
ZB-1200K, ZB-2200K
ALPHA-10K
ALPHA-20K

RS-232C TYPE CCD SCANNER WITH BUILT-IN DECODER INCLUDE :

ZB-1000R, ZB-1000R+
ZB-2000R, ZB-2000R+
ZB-1200R, ZB-2200R
ALPHA-10R
ALPHA-20R

LASER EMULATION (TTL) TYPE CCD SCANNER INCLUDE :

ZB-1000T, ZB-1000T+
ZB-2000T, ZB-2000T+
ZB-1200T, ZB-2200T
ALPHA-10T
ALPHA-20T
ALPHA-10/20W+

FCC Notice

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

* Reorient the receiving antenna
* Relocate the computer with respect to the receiver
* Move the computer away from the receiver
* Plug the computer into a different outlet so that computer and receiver are on different branch circuits

If necessary, the user should consult the manufacturer, an authorized dealer or experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: " **How to Identify and Resolve Radio-TV Interference Problems**". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004000003454.

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CHAPTER 1

INTRODUCING THE SCANNERS

CHAPTER 1 INTRODUCING THE SCANNERS

Members of Series CCD Scanners

ZEBEX CCD Scanners are handheld Scanners, which use superior optical components and a charged coupled device array without moving parts, with high reliability, and high first good read rates. The scanning width of ZB-1000/1200 series is 58.5m/m, and that of ZB-2000/2200 series is 80m/m. Besides, the field of depth of ZB-1000$^+$/2000$^+$ CCD Scanner can reach to 50mm. The MODEL and MAIN SPECIFICATION of series CCD Scanners are as below:

Model #	Depth of Field EAN*1 PCS = 90%	Scanning Width	Interface
ZB-1000T	25mm	58.5mm	Laser Emulation(TTL)
ZB-1200T	20mm	58.5mm	Laser Emulation(TTL)
ALPHA-10T	50mm	60mm	Laser Emulation(TTL)
ZB-1000R	25mm	58.5mm	RS-232C Serial
ZB-1200R	20mm	58.5mm	RS-232C Serial
ALPHA-10R	50mm	60mm	RS-232C Serial
ZB-1000K	25mm	58.5mm	Keyboard Emulation
ZB-1200K	20mm	58.5mm	Keyboard Emulation
ALPHA-10K	50mm	60mm	Keyboard Emulation
ZB-2000T	25mm	80mm	Laser Emulation(TTL)
ZB-2200T	20mm	80mm	Laser Emulation(TTL)
ALPHA-20T	50mm	80mm	Laser Emulation(TTL)
ZB-2000R	25mm	80mm	RS-232C Serial
ZB-2200R	20mm	80mm	RS-232C Serial
ALPHA-20R	50mm	80mm	RS-232C Serial
ZB-2000K	25mm	80mm	Keyboard Emulation
ZB-2200K	20mm	80mm	Keyboard Emulation
ALPHA-20K	50mm	80mm	Keyboard Emulation
ZB-1000T$^+$	50mm	58.5mm	Laser Emulation(TTL)
ZB-1000R$^+$	50mm	58.5mm	RS-232C Serial
ZB-1000K$^+$	50mm	58.5mm	Keyboard Emulation
ZB-2000T$^+$	50mm	80mm	Laser Emulation(TTL)
ZB-2000R$^+$	50mm	80mm	RS-232C Serial
ZB-2000K$^+$	50mm	80mm	Keyboard Emulation

Unpacking The Scanners

This section tells you what you should do when you unpack your scanner. First, remove the scanner and its accessories from the box and packing material, refer to the packing list to make sure you have received all of the items ordered. If anything is missing, contact your dealer immediately. Second, visually inspect all of the scanners and accessories to make sure nothing is damaged. If anything is missing or appears damaged, immediately contact your dealer. Third, please save all of the boxes and packing material. You will need them if you must return the scanner for service or replacement.

The Exterior Features of Scanner

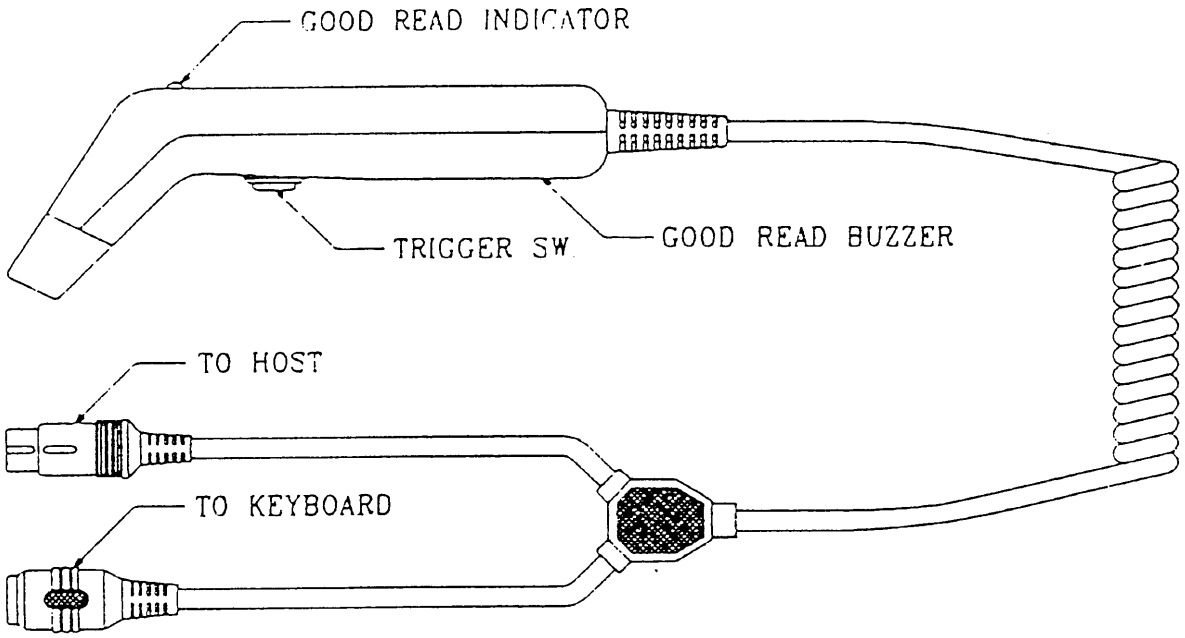


Fig. 1 The exterior features of key board emulation type scanners

CHAPTER 2

SPECIFICATIONS

CHAPTER 2 SPECIFICATIONS

Optical

Optics	Charged couple device
Resolution	ZB-1000/2000, Alpha-10/20 = 0.125mm (5mil) ZB-1200/2200 = 0.15mm (6mil) (using code 39, pcs = 90%, contact)
Scanning width	ZB-1000, ZB-1000 +, ZB-1200 = 58.5mm (2.3") Alpha-10 = 60.0mm (2.35") when contact
	ZB-2000, ZB-2000 +, ZB-2200, Alpha-20 = 80.0mm (3.15") when contact
Light source	660nm visible LED
Scanning speed	50 or 100 scan/sec. (option 200 scan/sec.)
Max reading distance	ZB-1200/2200 = 20mm
	ZB-1000/2000 = 25mm ZB-1000 +/2000 +, Alpha-10/20 = 50mm

Electrical

Supply voltage	5VDC ± 10%
Power consumption	ZB-1000T/T +/1200T = 100mA typical in operation
	ZB-1000R/R +/1200R = 160mA typical in operation
	ZB-1000K/K +/1200K = 160mA typical in operation
	ZB-2000T/T +/2200T = 140mA typical in operation
	ZB-2000R/R +/2200R = 200mA typical in operation
	ZB-2000K/K +/2200K = 200mA typical in operation
	Alpha-10T = 100mA typical in operation
	Alpha-10R/10K = 160mA typical in operation
	Alpha-20T = 140mA typical in operation
	Alpha-20R/20K = 200mA typical in operation

Environment

Operating temp	0° C to 40° C
Storage temp	-20° C to 60° C
Humidity	20% RH to 80% RH (no condensation)
Ambient light rejection	1500 LUX Max (Fluorescence) 800 LUX Max (Sunlight)

Mechanical

Cable length	Coil 2M when straight
Connector type	Laser emulation type scanners : D-Sub 9 Pin, AMP SQR 9Pin and Din 6 Pin
	RS-232C type scanners : D-Sub 9 Pin, D-Sub 25 pin with DCJACK, and ESD protection type D-Sub 25 pin connector
	Keyboard emulation type scanners : Din 5 Pin, Y connector, D-sub 9 pin, or Din 5 Pin T connector
Weight	ZB-1000/1200, Alpha-10 series = 155 gram (5.5oz) not including cable and connector
	ZB-2000/2200, Alpha-20 series = 180 gram (6.4oz) not including cable and connector
Case material	ABS plastic

BAR CODE SYMBOLOGIES SUPPORTED
(RS-232C AND KEYBOARD EMULATION SCANNER ONLY)

THE RS-232C AND KEYBOARD EMULATION CCD SCANNERS CAN BE PROGRAMMED TO RECOGNIZE ONE OR MORE BAR CODE SYMBOLOGIES AUTOMATICALLY. IF THE SCANNER IS CONFIGURED TO SUPPORT MULTIPLE BAR CODE SYMBOLOGIES, THE SCANNER WILL ALTO DISCRIMINATE BETWEEN SYMBOLOGIES. THE SUPPORTED SYMBOLOGIES INCLUDE:

STANDARD CODE 3 OF 9
FULL ASCII CODE 3 OF 9
UPC-A, UPC-E, UPC-E1 (WITH ADDENDUM)
EAN/JAN 8, EAN/JAN 13 (WITH ADDENDUM)
INTERLEAVED 2 OF 5
STANDARD 2 OF 5
CODE 128
CODE 11 (OPTIONAL)
CODE 93 (OPTIONAL)

TYPE OF KEYBOARD EMULATED

THE KEYBOARD EMULATION TYPE CCD SCANNERS CAN EMULATE A NUMBER OF PERSONAL COMPUTERS' KEYBOARD AND A NUMBER OF TERMINALS' KEYBOARD. TYPE OF KEYBOARD EMULATED INCLUDE:

IBM PC/XT
ALCATEL ITT XTRA
CANON PC A200
COMMOPORE PC
COMPAQ 36XT/DESKPRO
CONATEC PC
EAGLE PC
ERICSSON PC
MEMOREX PC 7000
NORMEREL S TURBO 2
OLIVETTI M200
PHILIPS PC/P3102/P3105
SANYO PC 16
SIEMENS-NIXDORF M35
SPERRY PC
TANDON PCX 10
THOMSON NICROMEGA 16

ALL OF THE ABOVE COMPUTERS USING A STANDARD "Y" TYPE CABLE WITH 5 PIN DIN CONNECTOR KEYBOARD TYPE SELECTION SET TO IBM PC/XT.

IBM PC/AT
ACER 1120
APRICOT XEN I 386
BULL MICRAL 35/40/45/50/65/75/600
CARRY 1
COMPAQ SLT 286/286/386
COUGAR PC/AT/AT3
DELL 320N+
EPSON AX2
GOUPIL G 40/G 5 386
HP VECTRA 386/25
ICL DRS M80
KONTRON KAT 286
MANNESMANN PC 920
NCR 6/8
NORMEREL OP AT
PHILIPS P 3204/P 3230/P 3345
REXON SUBMIT 1000
SANYO PC 17
SIEMENS-NIXDORF M55
TANDON PCA 12SL/20/30/PLUS TM 7630
TANDY 3000
TULIP AT COMPACT 2
VICTOR 286/286S/286A/286C/286P/286M/386CX/386SX/386MX/386S/386A
ZENITH AT Z 286

ALL OF THE ABOVE COMPUTER USING A STANDARD "Y" TYPE CABLE WITH 5 PIN DIN CONNECTOR KEYBOARD TYPE SELECTION SET TO IBM PC/AT.

PS/2
PS/2 50/2 55/260/280
BULL MICRAL 200
COMPAQ SLT 286/386 S, PROLINEA 3/25 ZS
ELONEX 325X
GOLDSTAR GS 317
GOUPIL GOLF
ICL DRS M15/M40/M45/M55/M75/M95
NORMEREL AT MAX/NS 58
OLIVETTI M300/PCS 286

ALL OF THE ABOVE COMPUTERS USING A STANDARD "Y" TYPE CABLE ADAPTOR WITH MINI DIN CONNECTOR KEYBOARD TYPE SELECTION SET TO IBM PC/AT.

IBM 347X TERMINAL
IBM 3151 TERMINAL
IBM 3487 TERMINAL

ALL OF THE ABOVE TERMINALS USING A STANDARD "Y" TYPE CABLE ADAPTOR WITH RJ-45 CONNECTOR KEYBOARD TYPE SELECTION SET TO IBM 3472/3477 .

IBM 3196 TERMINAL
IBM 316X TERMINAL
IBM 3179 TERMINAL
IBM 3180 TERMINAL
IBM 319X TERMINAL
IBM 3270 TERMINAL

ALL OF THE ABOVE TERMINALS USING A STANDARD "Y" TYPE CABLE ADAPTOR WITH 5 PIN DIN CONNECTOR KEYBOARD TYPE SELECTION SET TO IBM 3196 TERMINAL.

NEC 286/386 PERSONAL COMPUTER

THE ABOVE COMPUTER USING A STANDARD "Y" TYPE CABLE ADAPTOR WITH MINI DIN 8 PIN CONNECTOR KEYBOARD TYPE SELECTION SET TO NEC 286/386 TERMINAL.

IBM 5550

THE ABOVE TERMINAL USING A STANDARD "Y" TYPE CABLE ADAPTOR WITH MINI DIN CONNECTOR KEYBOARD TYPE SELECTION SET TO IBM 5550.

Connector Type And Pin Out Assignment Of Laser Emulation Type Scanner

D-Sub 9 pin Female Connector

Pin#	Function	Wire Color
1	Start of scan	Red
2	Data image	Brown
3	Good read LED	Green
4	No connection	Gray
5	Trigger signal	Yellow
6	Power enable	Blue
7	Ground	Black
8	Screen of cable	Black
9	+5V DC	White

AMP SQR 9 pin Female Connector

Pin#	Function	Wire Color
1	Start of scan	Red
2	Data image	Brown
3	Good read LED	Green
4	No connection	Gray
5	Trigger signal	Yellow
6	Power enable	Blue
7	Ground	Black
8	Ground	Black
9	+5V DC	White

Note: Cable shield Ground tied to connector housing.

Din 6 pin Male Connector

Pin#	Function	Wire Color
1	+5V DC	White
2	Data image	Brown
3	Ground	Black
4	Power enable	Blue
5	Trigger signal	Yellow
6	Start of scan	Red

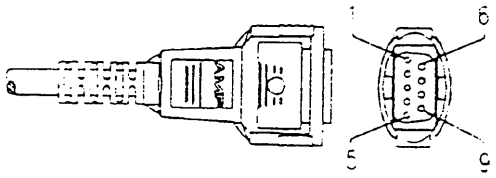


Fig. 2 Front view of D-Sub & AMP SQR 9 pin connector

Note: Cable shield Ground tied to connector housing.

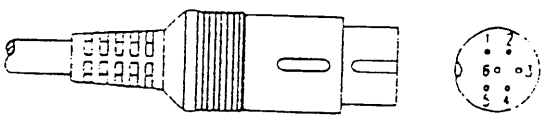


Fig. 3 Front view of Din 6 pin connector

External Power Supply Of RS-232C Type Scanner

Notice:

Before connecting to the power supply, make sure of your product's specification. Wrong or exceeding rating of voltage may result in serious product damage.

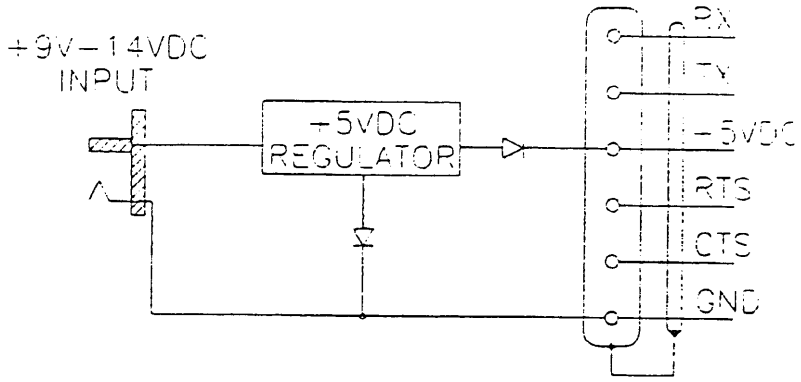


Fig. 4 Circuit diagram of D-Sub 25 pin connector with DC-Jack and +5V requlator

External Power Connection

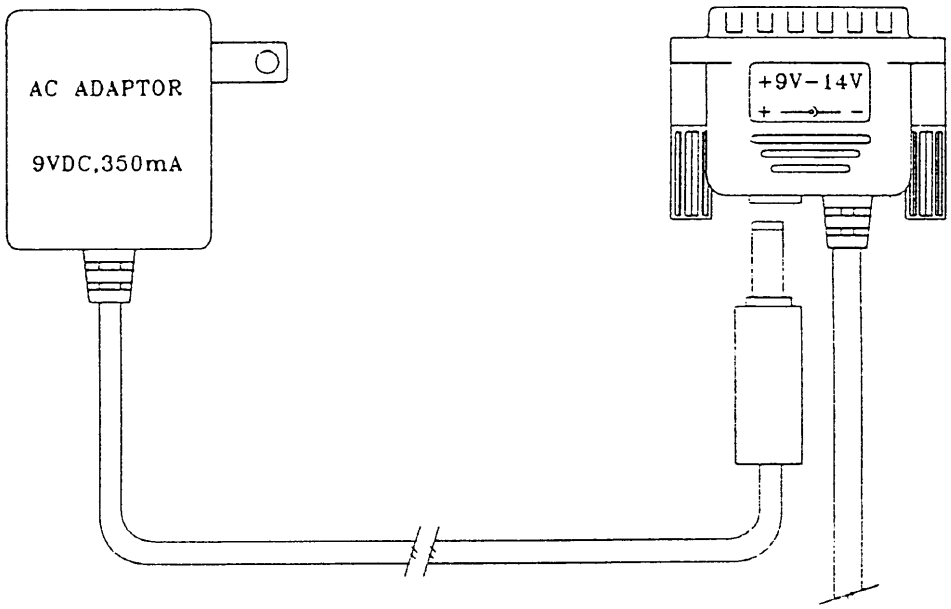


Fig. 5 External power connection

Connector Type And Pin Out Assignment Of RS-232C Scanner

D-Sub 25 pin female connector with DC-Jack and built-in +5V regulator

Type 1 Pin#	Type 2 Pin#	Function	Wire Color
1	1	No connection	
2	3	TX	Blue
3	2	RX	Green
4	5	RTS	Gray
5	4	CTS	Red
7	7	Signal GND	Black/ Yellow
25	25	+5V DC	White
16	16	+5V DC	White
Inner of DC Jack	Inner of DC Jack	+9~14VDC	N/A
Outer of DC Jack	Outer of DC Jack	GND	N/A

Note: 1. Screen of cable connect to connector's housing also.
2. Type 1 P/N 45089
Type 2 P/N 45113

D-Sub 25 pin female connector with DC-Jack only

Type 1 Pin#	Type 2 Pin#	Function	Wire Color
1	1	No connection	
2	3	TX	Blue
3	2	RX	Green
4	5	RTS	Gray
5	4	CTS	Red
7	7	Signal GND	Black/ Yellow
25	25	+5V DC	White
16	16	+5V DC	White
Inner of DC Jack	Inner of DC Jack	+5V DC	N/A
Outer of DC Jack	Outer of DC Jack	GND	N/A

Note: Type 1 P/N 45120
Type 2 P/N 45121

D-Sub 9 Pin Female Connector

Pin#	Function	Wire Color
2	RX	Green
3	TX	Blue
5	Signal GND	Black/ Yellow
7	RTS	Gray
8	CTS	Red
9	+5V DC	White
Shield	Cable screen	N/A

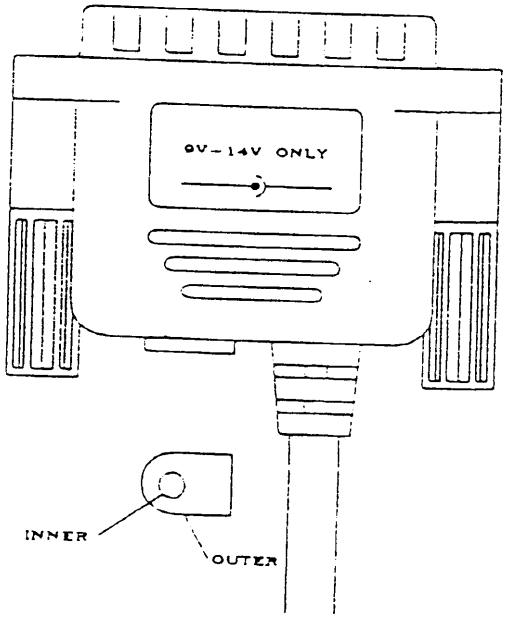


Fig. 6 D-Sub 25 pin connector with DC-Jack

Connector Type And Pin Out Assignment Of Keyboard Emulation Scanner

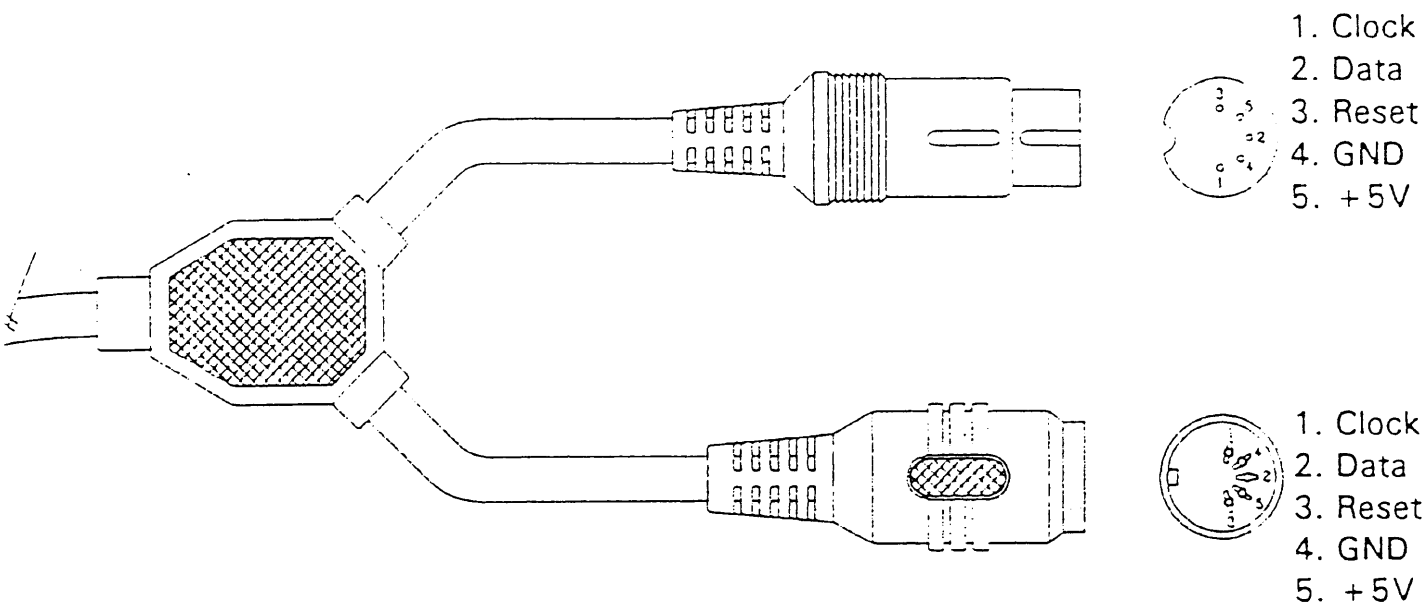
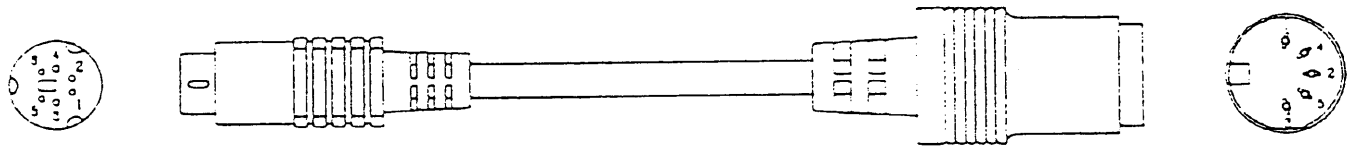


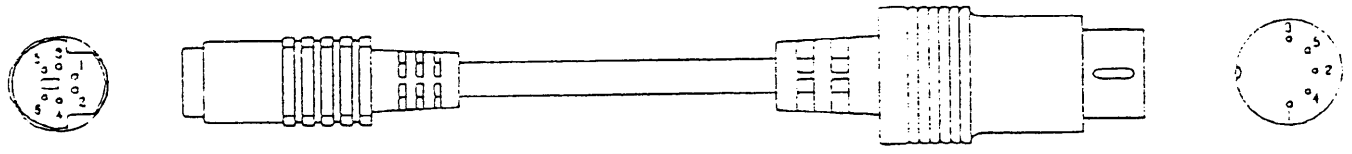
Fig. 7 IBM PC/XT/AT connector pin out assignment:

1. Data
2. NC
3. GND
4. +5v
5. Clock
6. NC

1. Clock
2. Data
3. Reset
4. GND
5. +5V

P/N 45063





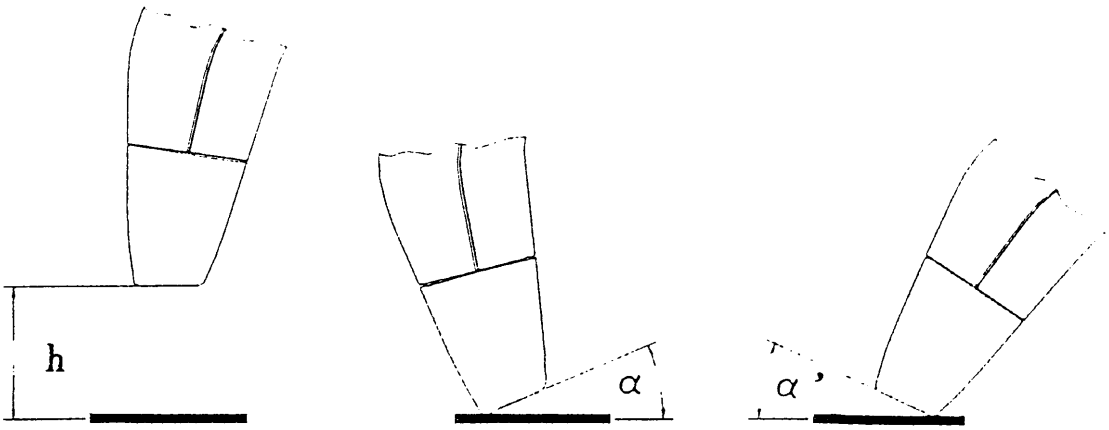
1. Data
2. NC
3. GND
4. +5V
5. Clock
6. NC

P/N 45064

1. Clock
2. Data
3. Reset
4. GND
5. +5V

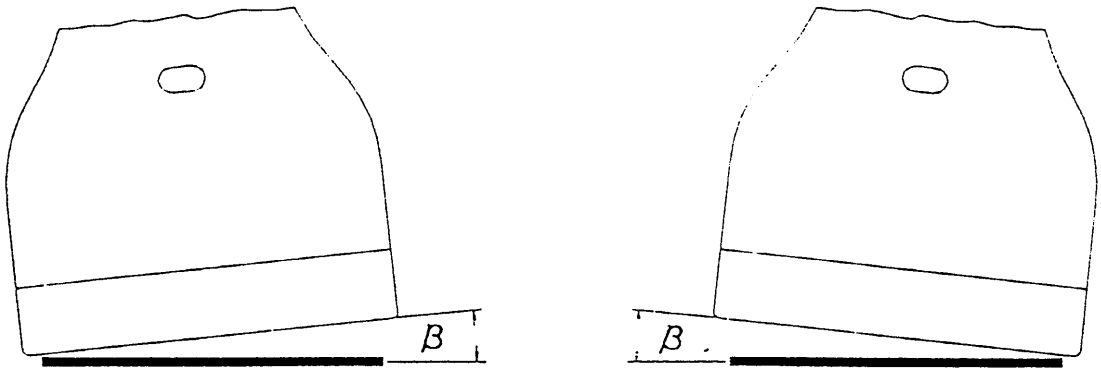
Fig. 8 IBM PS/2 adaptor pin out assignment:

Reading Features for Series CCD Scanners



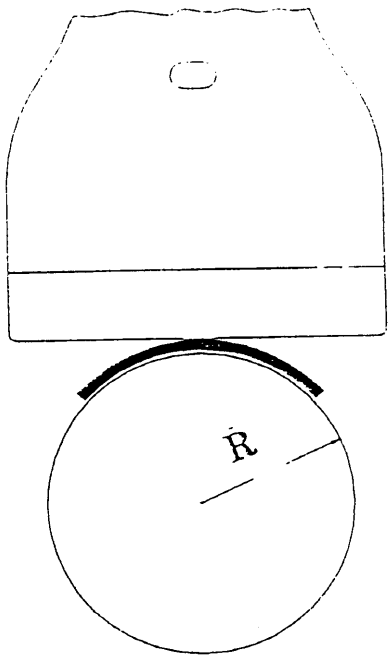
(h	= 0 ~ 25mm ZB-1000/2000)
(h	= 0 ~ 20mm ZB-1200/2200)
(h	= 0 ~ 50mm Plus series, Alpha-10/20)
EAN	x 1
PCS	= 0.9
α	= 0
β	= 0
θ	= 0
R	= ∞

Fig. 9 Max. reading distance and forward and reverse angle



(β	= 0 ~ 10° ZB-1000/2000)
(β	= 0 ~ 20° Plus series, Alpha-10/20)
EAN	x 1
PCS	= 0.9
h	= 0
α	= 0
θ	= 0
R	= ∞

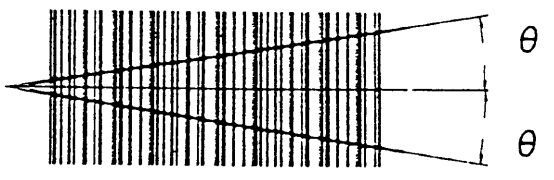
Fig. 11 Tilt angle



R

R	=	20 mm
EAN	x	1
PCS	=	0.9
h	=	5
α	=	0
β	=	0
θ	=	0

Fig. 12 Curvature



θ	=	±15°
EAN	x	1
PCS	=	0.9
α	=	0
β	=	0
θ	=	0
R	=	∞

Fig. 13 Rotation

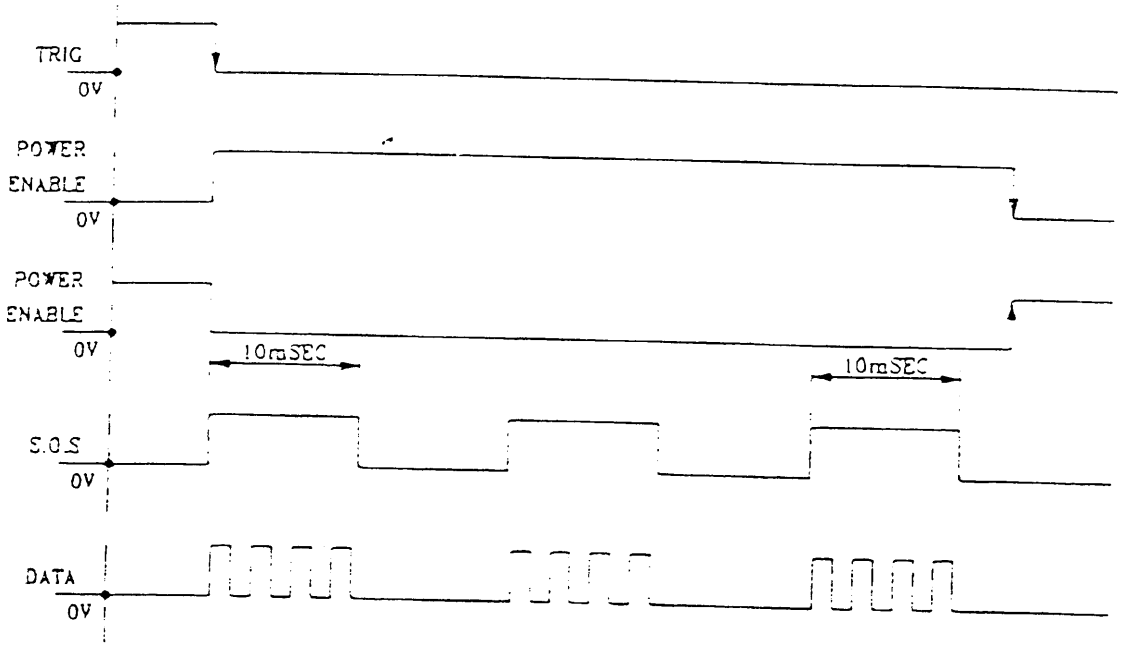


Fig. 14 50 Scan/Sec timing sequence:

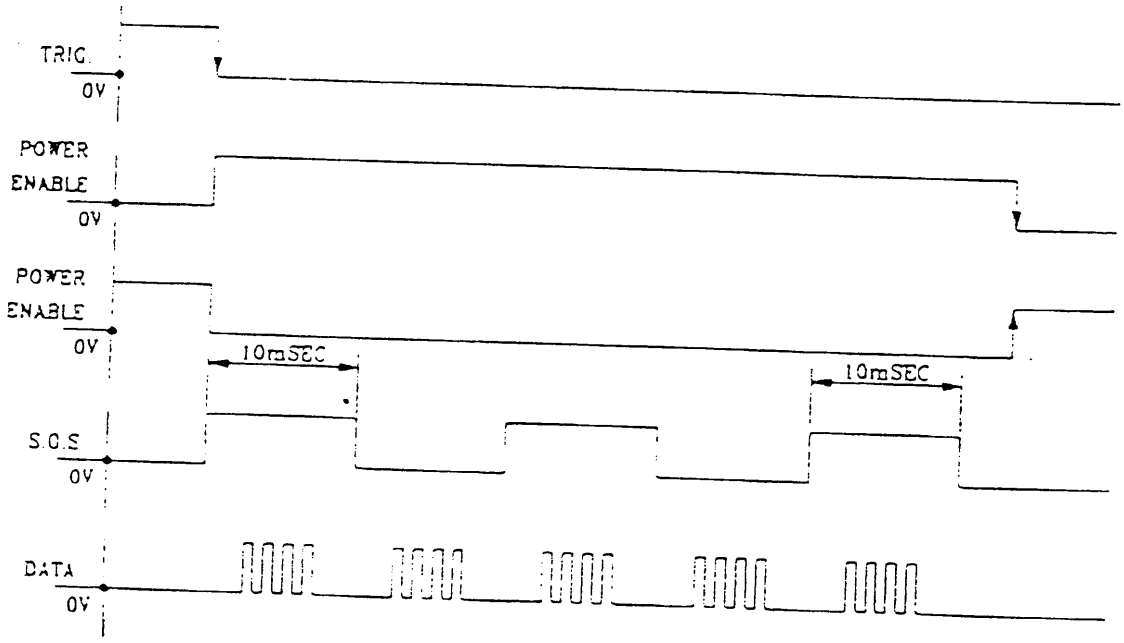


Fig. 15 100 Scan/Sec timing sequence:

Note:

For 200 Scan/Sec, timing sequence is the same as that of 100 Scan/Sec , but sampling time is 5 msec instead of 10 msec.

CHAPTER 3

INSTALLATION

Series CCD Scanners Installation

This chapter explains how to connect your CCD bar code scanners to a host computer and to a terminal. How to connect the scanner as a wedge between a PC and a keyboard or between an IBM terminal and a keyboard.

Handling Precautions

To protect both your CCD scanner and your host computer, you should switch off the power of these units before the installation. Static electricity can seriously damage the components in your computer. You must ensure that you have discharged any static electricity by grounding yourself to the chassis of your system before you begin.

Notice

ZEBEX Industries will not be responsible for damage which is caused to either the CCD scanner or the system at which your CCD scanner is attached because of incorrect installation.

Connecting Laser Emulation Type Scanner To The Bar Code Decoder

Laser emulation type CCD scanners can directly replace almost all of the scanners in the market. When installing, refer to the information in your Decoder User Manual. Be sure the connector type and pin out assignment matches the scanner.

Connecting RS-232C Scanner To The Host Computer

Before you start, notice:

* If your host computer is an IBM PC/XT/AT or any IBM compatible PC/XT/AT or P.O.S. System, make sure a serial communication adaptor has been installed and you have ordered the correct type cable. If you have a 25 pin serial port, you should use a 25 pin connector. If you have 9 pin serial port, and you wish to get an external power supply, you should use a 25 pin cable with a DC-Jack and one 25 pin to 9 pin adaptor (our P/N 45133)

*Not all the computer/POS manufacturers follow the EIA-232C standard , especially, pin assignment of their serial communication ports may be different from the standard. You are recommended not to install the scanner, except when you are sure how to do so. If you have any problem in installing the scanner, please consult your dealer for technical assistance.

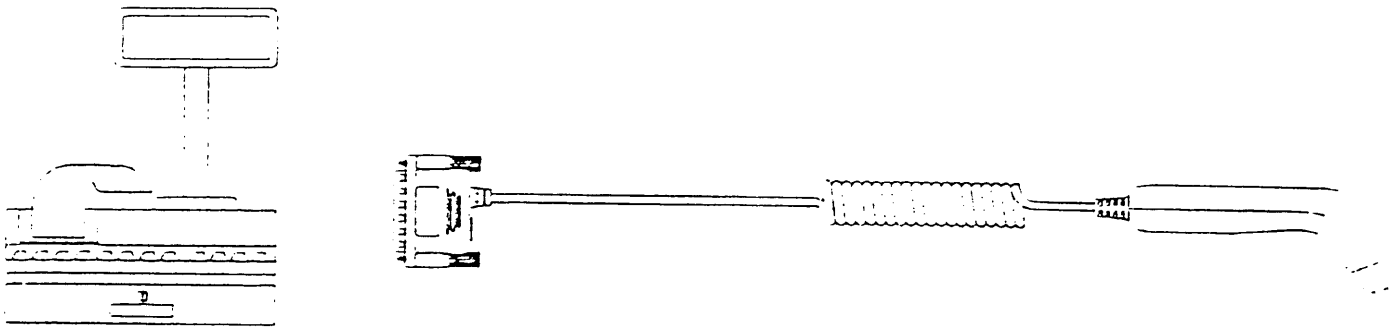


Fig. 16 Connecting to a P.O.S.

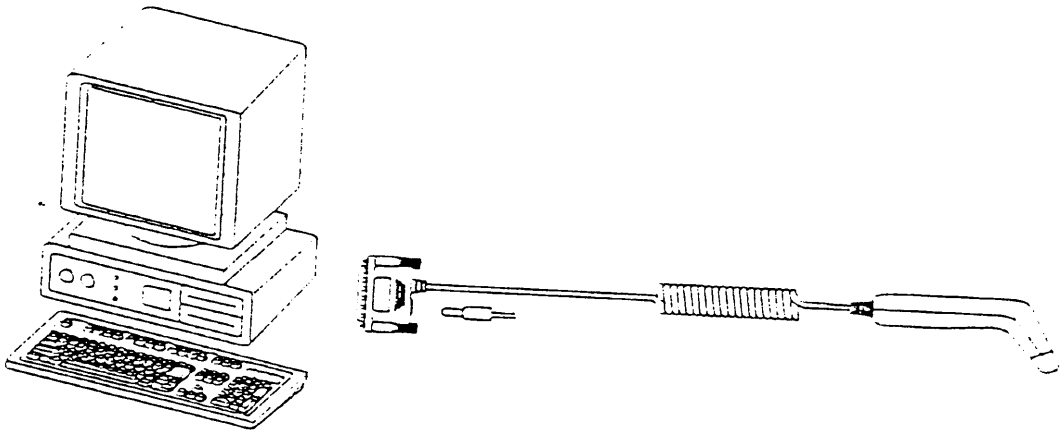


Fig. 17 Connecting to a PC

Procedure

* Make sure the power of your P.O.S. or PC is in the "Off" state
* Insert the 25 pin D-Sub connector at the end of the scanner cable into P.O.S. or PC serial port located on the back of the system unit, then tighten the screws on the cable connector.

Note:

Most of the serial ports of personal computer do not supply voltage, refer to connecting the external power to RS-232C scanner on the next page.

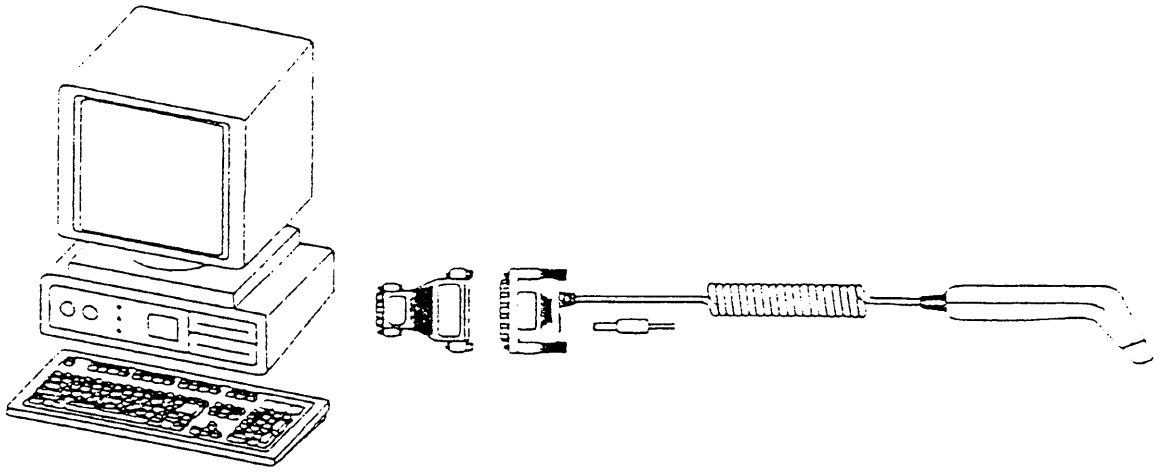


Fig. 18 PC with 9 pin RS-232C connector

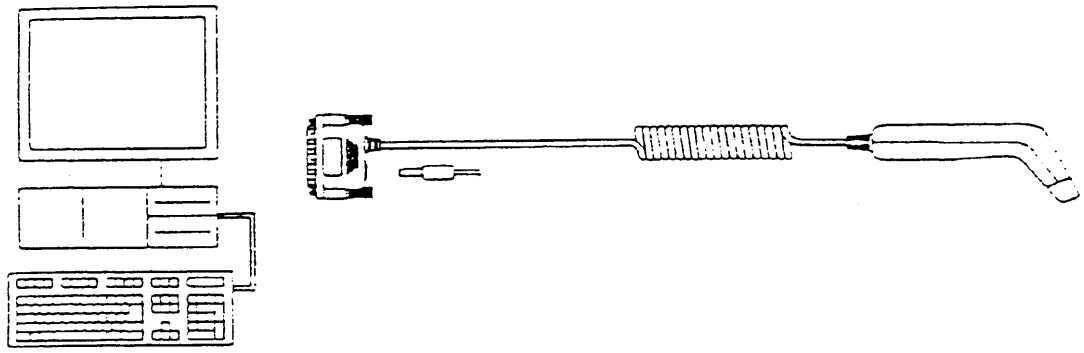


Fig. 19 PC with 25 pin RS-232 connector

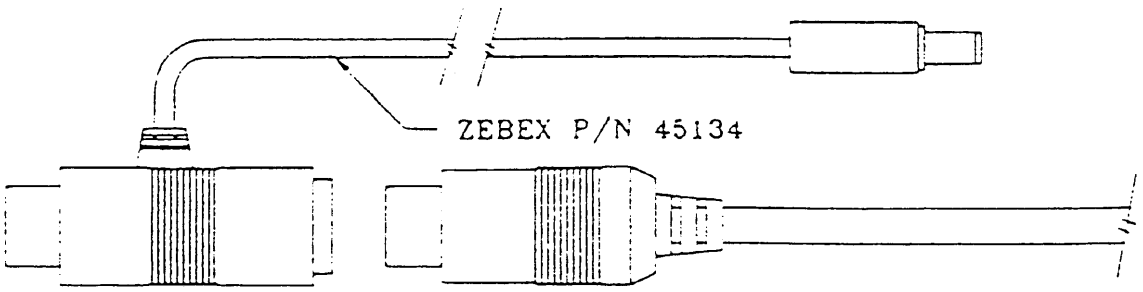


Fig. 20 How to get requlated +5 V DC from keyboard

Note: If your RS-232C type scanner is used with IBM PC/XT/AT (or compatible), you can choose the power supply shown as above, but the type of cable should be D-Sub 25 pin with DC-Jack only.

Connecting Keyboard Emulation Scanners between PC and Keyboard

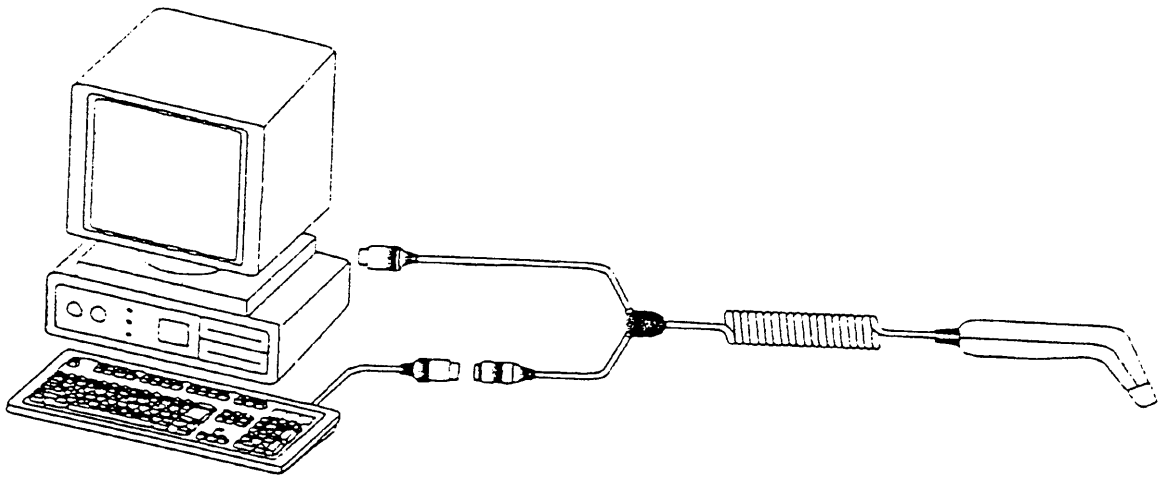


Fig. 21 Connecting to a PC/XT/AT

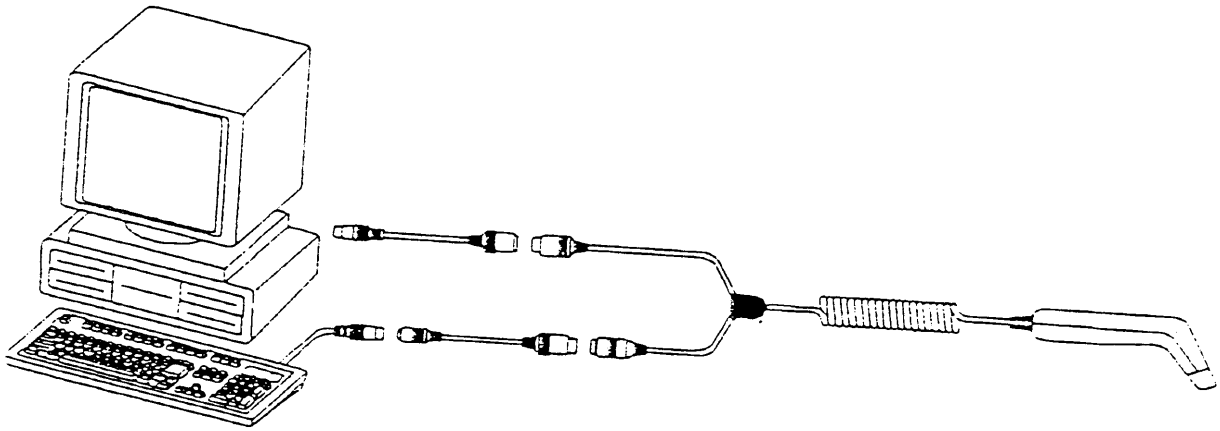


Fig. 22 Connecting to a PS/2

Connecting Keyboard Emulation Scanners between Keyboard and Terminal

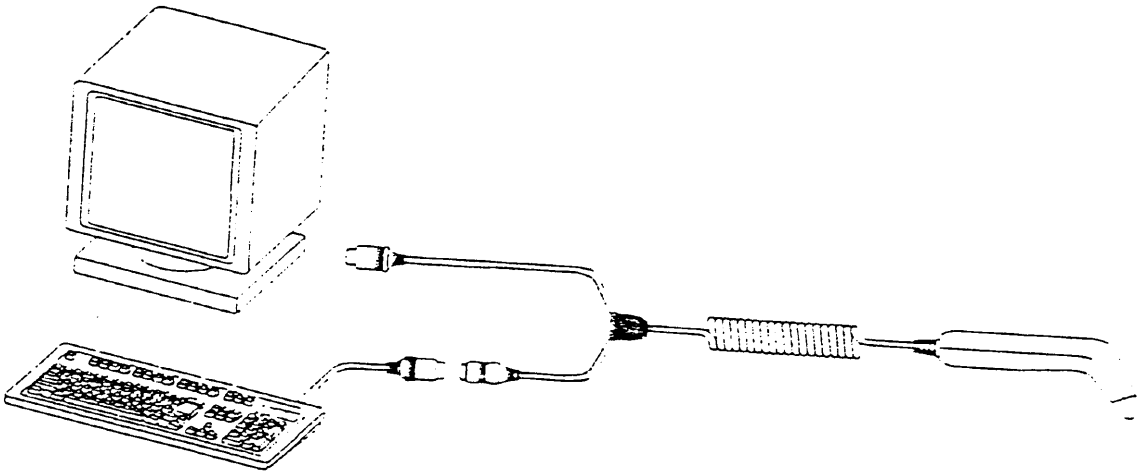


Fig. 23 Connecting to a terminal

Operating Parameters

Scanning mode selection
Scanning speed
Header and trailer
Inter message delay
Inter character delay
Message/block mode selection
Send command in block mode communication
Good read beeper tone selection
Data terminator

RS-232 Serial Communication Parameters Setting

Hand shake protocol
ACK/NAK response time setting
Baud rate, data bit, stop bit and parity
Message suffix
Code identifier enable
Code identifier setting

Keyboard Emulation parameters Setting

Keyboard type selection
Message suffix

Decoding Parameters

Reading codes selection
Code 39 parameters setting
Interleaved 2 of 5 parameters setting
Standard 2 of 5 parameters setting
UPC/EAN/JAN parameters setting
Codabar/Monarch parameters setting
Code 128 parameters setting

CHAPTER 4

PROGRAMMING

CHAPTER 4 PROGRAMMING

Introduction

The series CCD scanners (except laser emulation) can be configured by scanning a series of programming bar code labels. This allows the decoding option and interface protocols to be tailored to a specific application. The configuration is stored in non-volatile memory and cannot be changed by removing power from the scanner

The scanner must be properly powered before programming. For RS-232C type scanners, an external power adaptor must be used to supply DC power to the scanner. If a keyboard emulation type scanner is used with a IBM PC/XT/AT, PS/2 or any fully compatible computer, power will be drawn from the keyboard port. No external power adaptor is required. If a keyboard emulation scanner is used with any other non IBM PC compatible computers, an external power adaptor may be needed.

During programming mode, the CCD scanner will acknowledge a good and valid reading with a short beep. It will give two long beeps for either an invalid or bad reading.

Programming Options

Programmable options are divided into four groups. The first group includes the options that show the general behavior of the CCD scanner. The second group of options governs the operation of RS-232C type serial ports. The third group selects the keyboard type that the keyboard emulation scanner will emulated. The last group sets the decoding parameters for each bar code symbology.

Default Parameters

This table gives the default settings of all the programmable parameters. The default settings will be restored whenever the "Reset" programming label is scanned and the CCD scanner is in programming mode.

Default Values Of Operating Parameters:

Function	Default Values
Scanning Mode Selection	Trigger mode
Scanning speed	Medium
Header and trailer	None
Inter-Message delay	None
Inter-Character delay	None
Message/Block mode selection	Message
Send command in block mode communication	Carriage return
Good read beeper tone selection	2KHz/120 mSec
Data terminator	Enter/carriage return

Default Values Of Key Board Emulation Parameters Setting:

Function	Default Values
Key board type selection	IBM PC/AT
Message suffix	Enter/carriage return

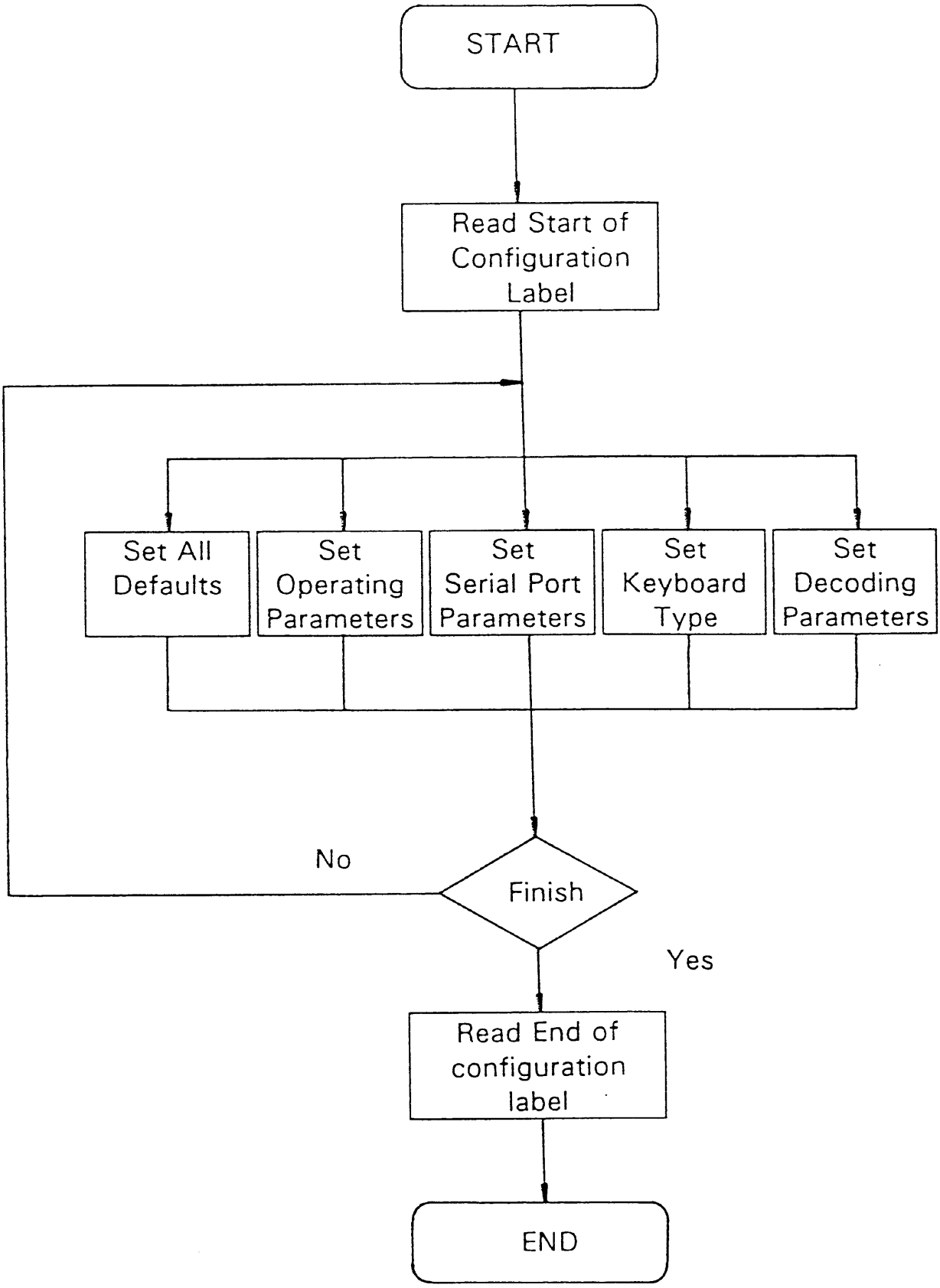
Default Values Of RS-232C Serial Communication Parameters:

Function	Default Values
hand shake protocol	None
ACK/NAK response time setting	None
Baud rate	9600
Data bit	8
Stop bit	1
Parity	Mark (None)
Message suffix selection	Enter/carriage return
Code identifier transmmiting	Disable
Code 39 bar code identifier code	M
ITF 2 of 5 bar code identifier code	I
STD 2 of 5 bar code identifier code	H
UPC-E	E
UPC-A	E
EAN-13	F
EAN-8	FF
Codabar bar code identifier code	N
Code 128 bar code identifier code	K
code 93 bar code identifier code	L

Default Values Of Decoding Parameters

Function		Default Value
Reading codes selection	code 39	enable
	ITF 2 of 5	enable
	STD 2 of 5	enable
	UPC/EAN/JAN	enable
	codabar	enable
	code 11(option)	enable
	code 128	enable
	code 93(option)	disable
Code 39	codes	standard
	start/stop characters	not transmitting
	check digit	disabled
Interleaved 2 of 5	length	10 digit fixed
	check digit	disable
STD 2 of 5	start/stop characters	2 bars
	length	fixed
	check digit	disabled
UPC/EAN/JAN	format	all
	addendum	not support
	UPC-E = UPC-A	disabled
	UPC-A leading digit	transmit
	UPC-A check digit	transmit
	UPC-E leading digit	not transmit
	UPC-E check digit	not transmit
Codabar	type	standard
	start/stop characters	A,B,C,D
Code 128	FNC 2 append	disabled
	check digit	calculate but not send

PROGRAM PROCEDURE USING BAR CODE MENUS

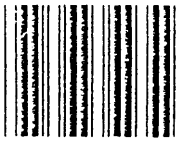


CAUTION:

1. The reading of this code turns all the parameters back to default values.

2. When you intend to return your scanner to the default parameters, scan the "RESET" label first. Do not scan "Start of Configuration"!

3. If you do not follow the above procedure, the scanner will hang up. Please turn off, then turn on and scan the "RESET" label again.



RESET

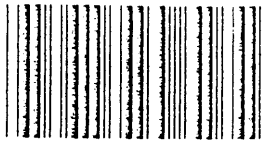
Note:

1. The default parameters are listed in pages 25 ~ 27 of this user's manual.

2. The default parameters are designated by the framed options.

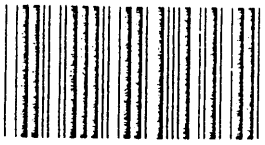
SCANNING MODE SELECTION

For series CCD scanners, there are 6 scanning modes to suit your application requirements.



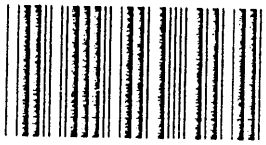
Trigger mode

The scanner will turn off after a successful reading. In addition, you must press the trigger switch again for next reading.



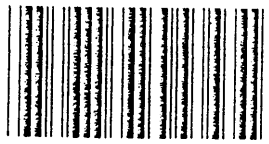
Auto scan mode

This mode suitable for hand free operation. After the scanner is programmed, the scanner will light up continually. The same bar code will not be read twice at this mode.



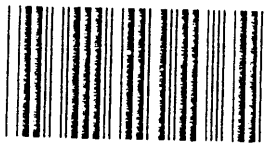
Repeat mode

This mode is similar to the auto scan mode but double reading for the same bar code is permitted if the scanner trigger switch is pressed.



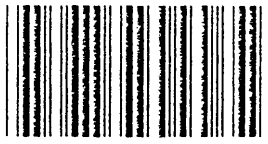
Alternate mode

The scanner will light up when press the scanner trigger switch once. And, the scanner will turn off for next pressing.



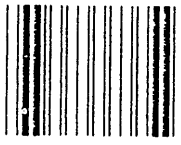
Momentary mode

The scanner will light up only when the trigger switch is pressed. The scanner will turn off when the trigger switch is released.

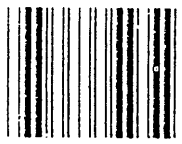


Testing mode

For testing the response of the scanner.



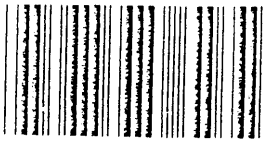
Start of configuration



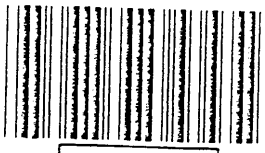
End of configuration

SCANNING SPEED

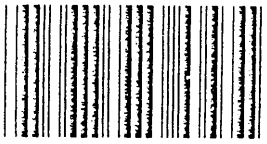
This option controls the scanning speed that the scanner can accommodate. There are three speed levels for your preference.



Fast



Medium

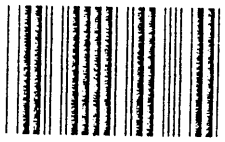


Slow

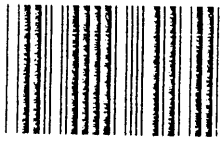
The default scanning speed is "Medium"

HEADER AND TRAILER

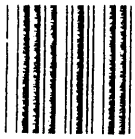
This option allow you to append a header and/or a trailer to every message transmitted via the serial ports or the keyboard port. There is no restriction in selecting header or trailer characters as long as the sum of the lengths of header and trailer is not greater than 10 digits.



Header



Trailer

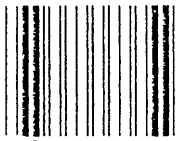


Set

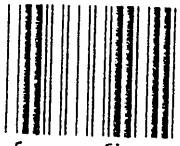
Follow these steps to set your own header and trailer.

1. Select either the header or trailer you are going to program by scanning the corresponding label.
2. Scan the character(s) you want from the enclosed ASCII table to set as header or trailer (be sure to enable full ASCII code 39 option before you start).
3. Read the "Set" label to set your choice into memory.

Both the default header and trailer options are none.



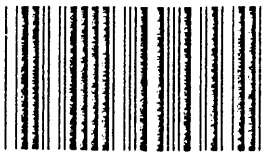
Start of configuration



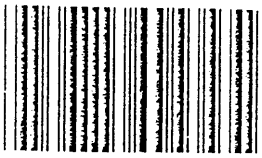
End of configuration

INTER-MESSAGE DELAY

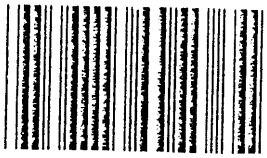
The series CCD scanners allow you to add a delay between two consecutive messages. This delay will be added before each data transmission. Scan the "Enable" label and then select the appropriate delay time to active this feature.



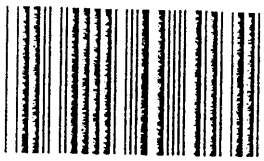
Enable



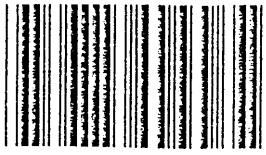
Disable



100 mSec



500 mSec

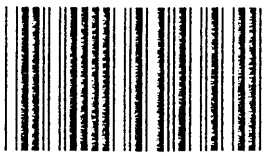


1 Second

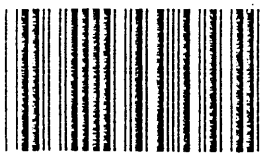
The default inter-message delay is "Disable"

INTER-CHARACTER DELAY

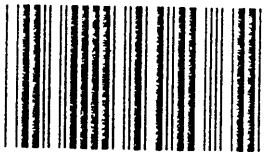
This option governs delay time between two consecutive characters. The delay time can be altered by scanning the following labels.



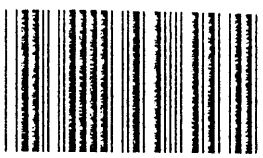
None



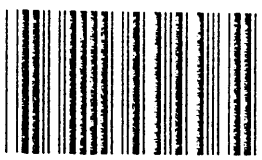
10 mSec



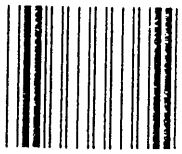
20 mSec



50 mSec



250mSec

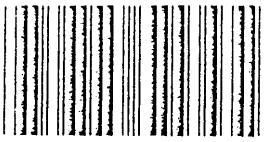


Start of configuration

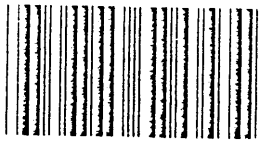
End of configuration

MESSAGE/BLOCK MODE SELECTION

This option allows you to treat every scanned data as either an independent message or one of a block messages. In the message mode, the data scanned will be transmitted immediately. On the other hand, the data scanned will be appended to the message buffer if the scanner is programmed in block mode. A block message will only be transmitted after a "Send" command is entered. This mode is only available when the scanner is working with code 39 labels. You are free to choose any character as the "Send" command.



Message

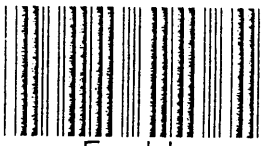


Block

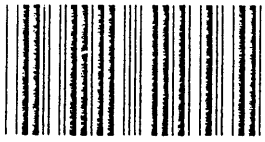
The default of this option is "Message".

SEND COMMAND IN BLOCK MODE COMMUNICATION

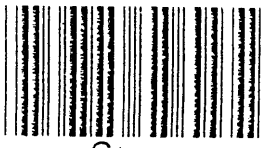
You can use this option to set your own "Send" command used in block mode communication.



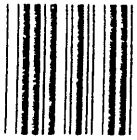
Enable



Disable



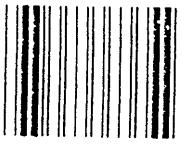
Store



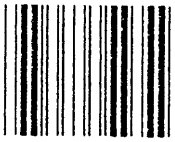
Set

1. Reading the "Store" label to allow a new "Send" command to be stored in the next step.
2. Scan the desired code from the enclosed full ASCII table. (Please enable full ASCII code 39 option before you do this step.)
3. Read the "Set" label to set your choice into memory.

The default "Send" command is "CR" (ASCII 13).



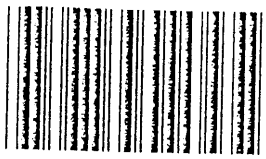
Start of configuration



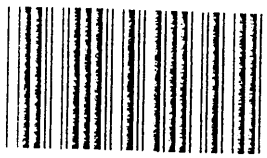
End of configuration

GOOD READ BEEPER TONE SELECTION

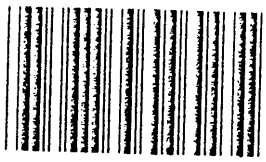
You can use this option to set frequency and or duration of buzzer after successful reading.



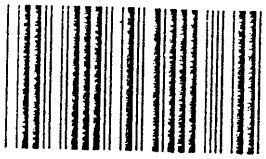
2KHz/120mSec



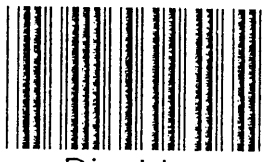
1KHz/120mSec



2KHz/200mSec

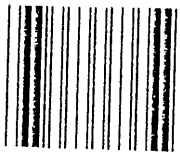


1KHz/200mSec

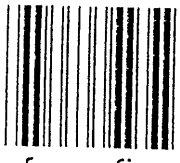


Disable

The default good read beeper is "1KHz/120mSec"



Start of configuration



End of configuration

RS-232C SERIAL COMMUNICATION PARAMETERS SETTING

Handshaking protocol

The RS-232C scanner supports four handshaking protocols. With these options of communication protocols, you can tailor the scanner to meet the requirements of most systems. These handshaking protocols are:

* None: The scanner will transmit any read data unconditionally. The scanner will not check if the receiving device is ready or the transmitted message is received correctly.
* RTS/CTS: Under this handshaking protocol, the scanner uses the RTS pin to instruct the connected device to transmit data and tests the CTS pin for readiness of the connected device to receive data.
* ACK/NAK: While selecting this option, the scanner waits for an ACK or NAK signal from the host computer after each data transmission. Normally, the scanner will temporarily store the scanned data in the memory buffer before receiving the ACK or NAK signal. If the ACK signal is received, it will clear the transmitted data and continue to send the next data. In case the NAK signal is received, it will continue to transmit the same data until receiving the ACK signal.
* Xon/Xoff: During the data communication, and a scanner receives a Xoff (ASCII 013H), it will stop the transmission at once. The scanner waits for a Xon (ASCII 011H) to start the transmission again.

None

RTS/CTS

ACK/NAK

Xon/Xoff

The default handshaking protocol is "None".

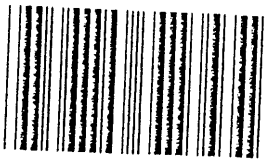
Start of configuration

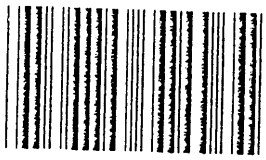
End of configuration

ACK/NAK RESPONSE TIME SETTING

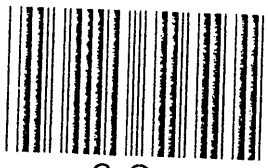
ACK/NAK response time can be altered by the following labels.

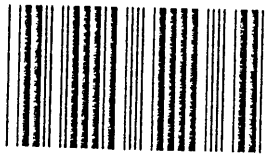
ACK/NAK RESPONSE TIME

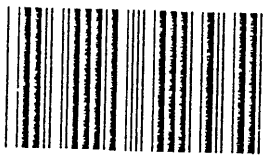

100 mSec

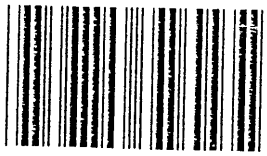

2 Sec

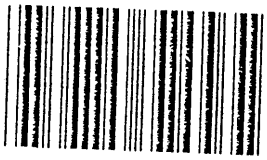

200 mSec

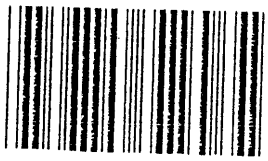

3 Sec


300 mSec


5 Sec

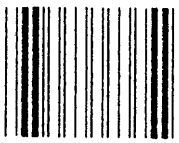

500 mSec

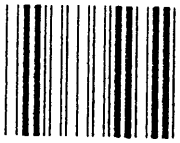

Infinity


1 Sec

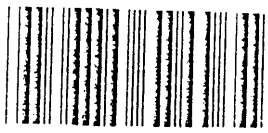
The RS-232C CCD scanner supports baud rates from 300 to 19200. The following table summarizes the permissible data formats.

* Data Bit = 7 or 8
* Stop Bit = 1 or 2
* Parity = Even, Odd, Mark (None) or Space

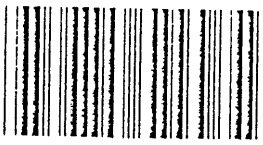

Start of configuration


End of configuration

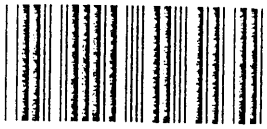
BAUD RATE



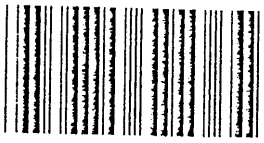
19200



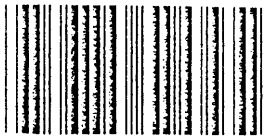
9600



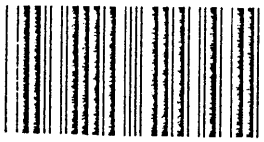
4800



2400

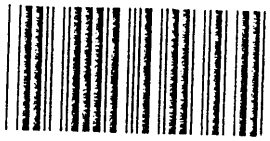


1200

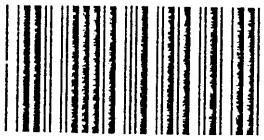


300

DATA BIT

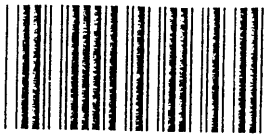


7

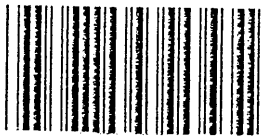


8

STOP BIT

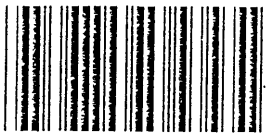


1

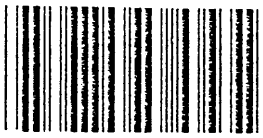


2

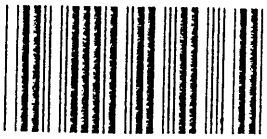
PARITY



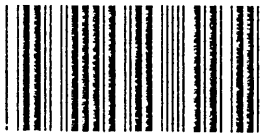
Even



Odd

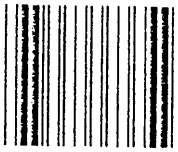


Mark

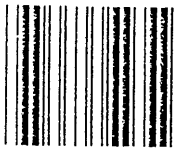


Space

The default of serial port: * Baud rate : 9600 * Stop Bit : 1
* Data bit : 8 * Parity : Mark (None)



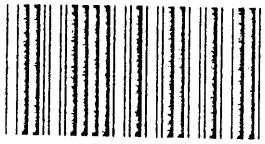
Start of configuration



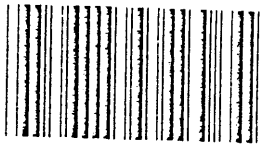
End of configuration

MESSAGE SUFFIX (FOR RS-232C ONLY)

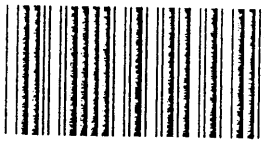
The series RS-232C type CCD scanners can be programmed to append a suffix to every message sent via serial port. A different suffix will be appended at the end of each message sent from the serial port. The suffix option for serial messages are various combinations of data terminator.



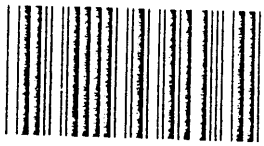
None



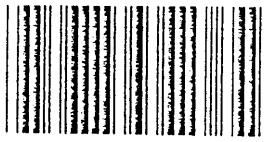
ETX



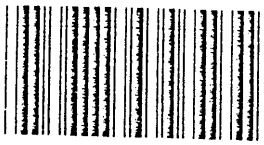
Hor. Tab



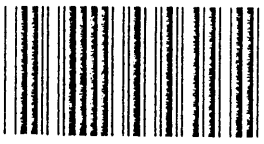
EOT



Line Feed



CR/LF

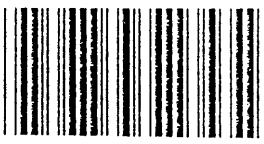


Carriage Return

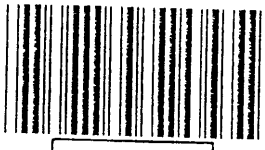
The default suffix for serial message is "CR" (ASCII code 13)

BAR CODE IDENTIFIER CODE ENABLE

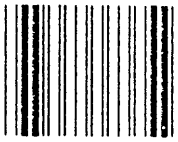
The RS-232C and keyboard emulation CCD scanners can transmit a max. 2 digit bar code identifier code for each different type of bar code. Use the labels to choose whether to transmit a bar code identifier code:



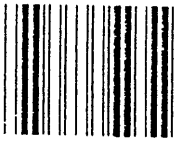
Enable



Disable



Start of configuration



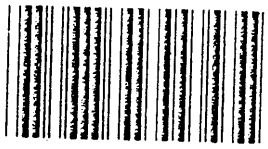
End of configuration

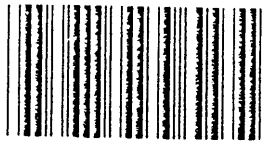
BAR CODE IDENTIFIER CODE SETTING

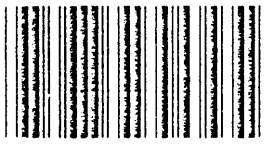
The RS-232C and keyboard emulation CCD scanners can set a max. 2 digits of bar code identifier codes according to different bar codes. The procedure is as following:

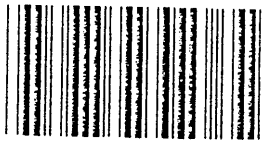
1. Scan "Start of configuration" label
2. Scan "Bar code identifier setting code" label
3. Scan the new code mark from ASCII table (max. two digits)
   For example, if "AB" is wanted for code 39 then scan "A" and "B"
4. Scan "Set" label
5. Scan "End of configuration" label

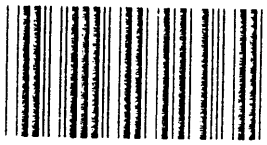
BAR CODE IDENTIFIER SETTING CODE

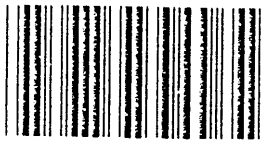

UPC-E

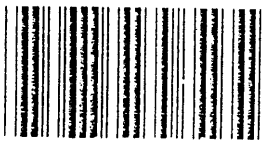

UPC-A

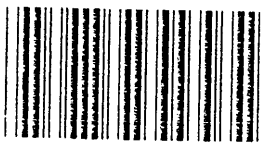

EAN-13

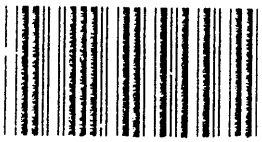

EAN-8

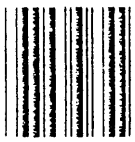

Standard 2 of 5

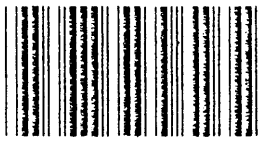

ITF 2 of 5


Codabar

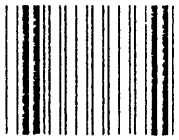

Code 39

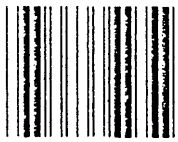

Code 128


Set


Code 93

The default bar code identifier code: UPC-E = E, UPC-A = E, EAN-13 = F, EAN-8 = FF, STD 2 of 5 = H, ITF 2 of 5 = I, Codabar = N, Code 39 = M, Code 128 = K Code 93 = L

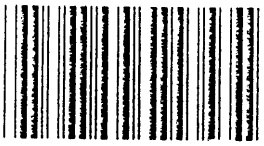

Start of configuration

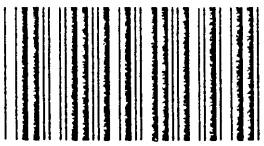

End of configuration

KEYBOARD EMULATION PARAMETERS SETTING

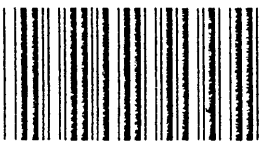
KEYBOARD TYPE SELECTION

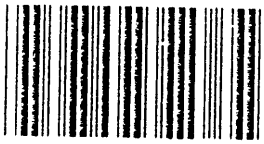
The series keyboard emulation scanners can emulate a number of personal computers' keyboard and a number of terminals' keyboard. Keyboard emulation is activated whenever you have selected the type of keyboard for which the scanner is going to emulate. Choose the appropriate type of keyboard emulation by scanning the labels under the following labels.

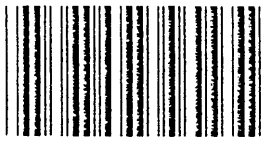

IBM XT USA

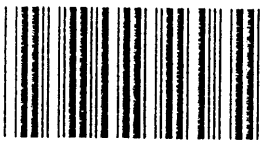

IBM AT USA

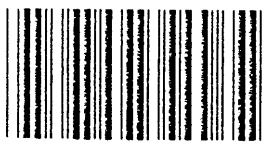

IBM XT Germany


IBM AT Germany

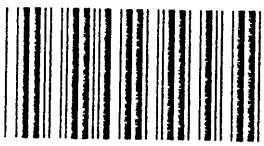

IBM XT French


IBM AT French


IBM XT Italian

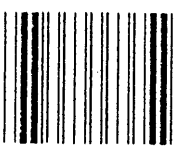

IBM AT Italian

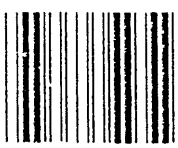

IBM XT Spanish


IBM AT Spanish

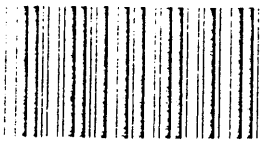

IBM XT Swedish


IBM AT Swedish


Start of configuration

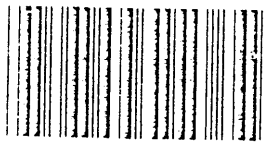

End of configuration

KEYBOARD TYPE SELECTION

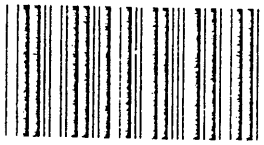


IBM XT UK

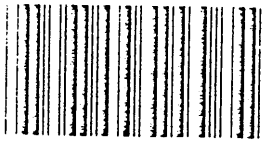
IBM AT UK



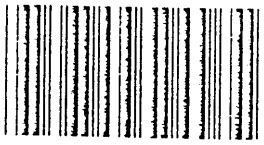
NEC 286/386 PC



IBM 5550 Terminal



IBM3472/3477 Terminal

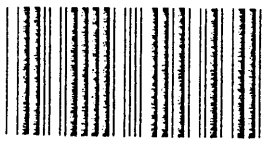


IBM 3196 Terminal

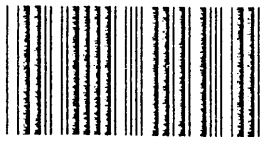
Default of this option is "IBM PC AT USA"

MESSAGE SUFFIX

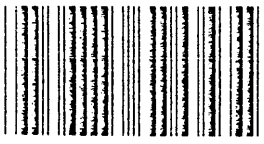
The key board emulation scanners can be programmed to append a suffix to every message sent via keyboard port. A different suffix will be appended at the end of each message sent from the key board port. Suffix options for key board emulation scanners are some cursor key.



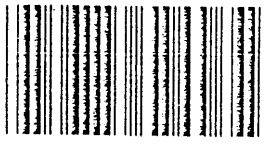
None



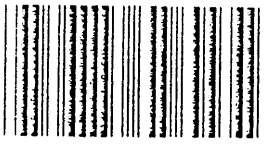
Field Exit



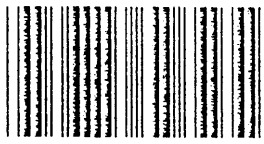
Hor. TAB



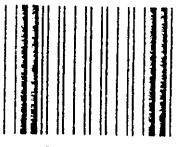
Field Advance



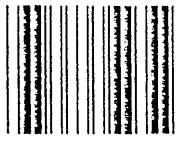
Enter



Return



Start of configuration



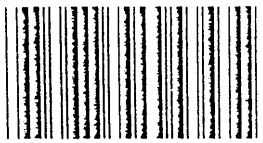
End of configuration

DECODING PARAMETERS

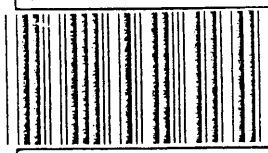
Reading Codes Selection

The CCD scanners can be programmed to recognize one or more bar code symbologies automatically. If the scanner is configured to support multiple bar code symbologies, the scanner will auto discriminate between different symbologies.

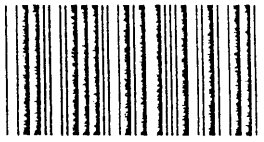
Code 39 enable



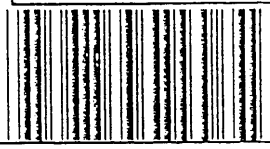
Code 39 disable



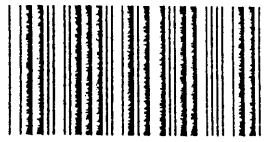
Codabar enable



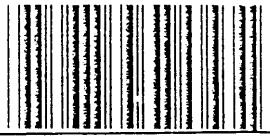
Codabar disable



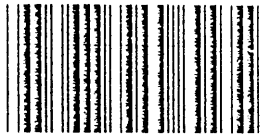
UPC/EAN/JAN enable



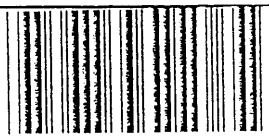
UPC/EAN/JAN disable



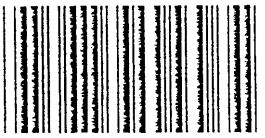
ITF 2 of 5 enable



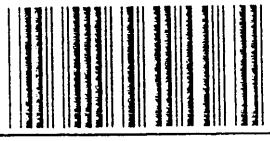
ITF 2 of 5 disable



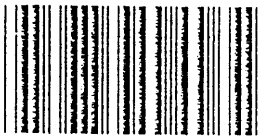
STD 2 of 5 enable



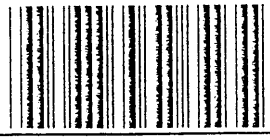
STD 2 of 5 disable



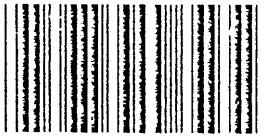
Code 128 enable



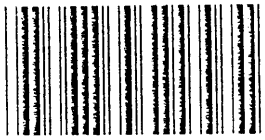
Code 128 disable



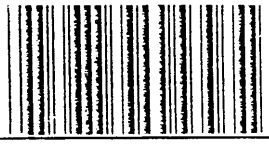
Code 11 enable(option)



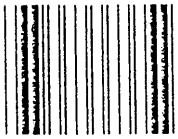
Code 11 disable(option)



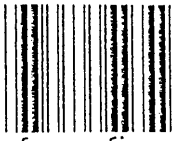
Code 93 enable(option)



Code 93 disable(option)



Start of configuration

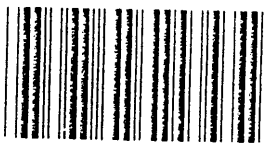


End of configuration

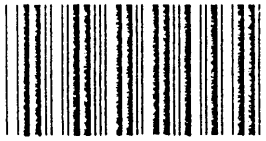
CODE 39 PARAMETERS SETTING

The CCD scanners can be programmed to support the standard code 39 or full ASCII code 39. In addition, it is the user's option to transmit or not to transmit the start and stop characters. You can also enable or disable the check digit feature. If the check digit feature is enable, you have the further option to decide whether the check digit is transmitted or not.

CHARACTER SET

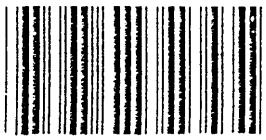


Standard code 39

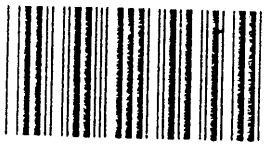


Full ASCII code 39

START/STOP CHARACTER TRANSMISSION

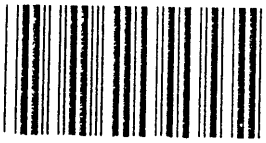


Yes

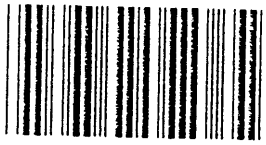


No

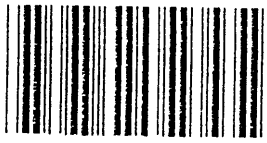
CHECK DIGIT



Calculate and transmit

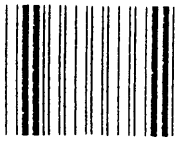


Calculate but not transmit



No

The default option are the standard code 39, no start/stop characters transmission, and no check digit feature



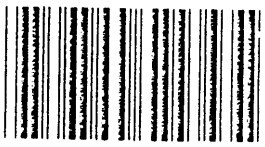
Start of configuration

End of configuration

INTERLEAVED 2 OF 5 PARAMETERS SETTING

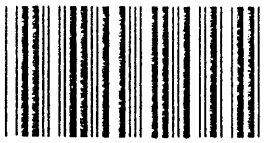
The CCD scanners can handle both variable length and fixed length interleaved 2 of 5 code. Make your choice with the following labels. If you want to read only the label of fixed length, you can follow these steps to program your scanner.

LENGTH



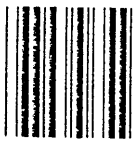
Variable

1. Scan the fixed length label.



Fixed

2. Enter the length of target labels by scanning the digit from full ASCII table.

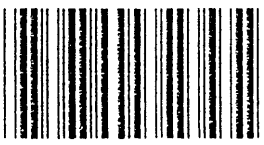


Set

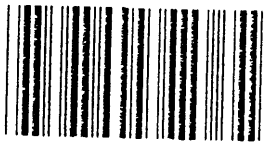
3. Read the "Set" label to set your choice into memory.

You have another option to enable or disable the check digit feature. If the check digit feature is enabled, you have the further option to decide whether the check digit is transmitted or not.

CHECK DIGIT



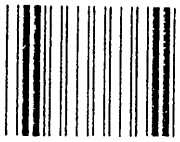
No



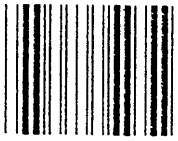
Calculate but not transmit

Calculate and transmit

The default options are "Fixed length" label and no check digit feature. The default length will be the length of the first interleaved 2 of 5 code read by the scanner after it is switched on.



Start of configuration

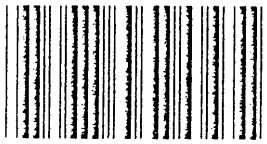


End of configuration

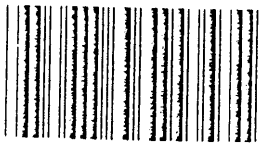
STANDARD 2 OF 5 PARAMETERS SETTING

Besides the options specified in interleaved 2 of 5, you are free to choose either type A or type B Start/Stop character combinations. Type A uses 3 bars while type B uses 2 bars for Start/Stop character combinations.

START/STOP CHARACTERS

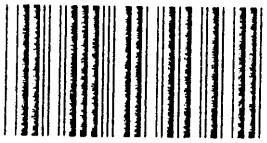


3 Bars

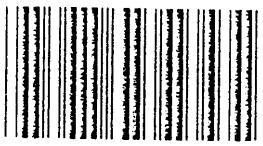


2 Bars

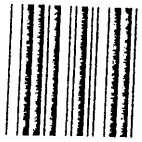
LENGTH



Fixed

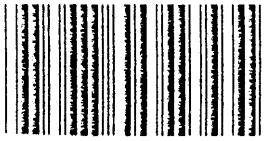


Variable

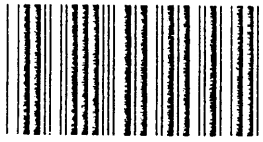


Set

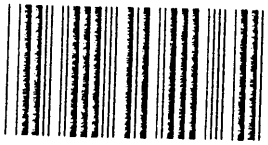
CHECK DIGIT



No

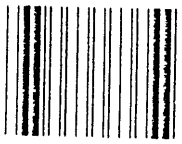


Calculate and transmit



Calculate but not transmit

The default options are 2 bars Start/Stop characters, fixed length standard 2 of 5 and no check digit feature.



Start of configuration

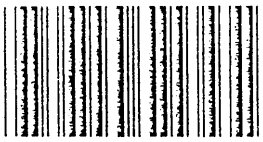
End of configuration

UPC/EAN/JAN PARAMETERS SETTING

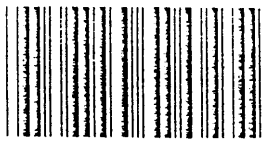
The CCD scanners can be programmed to recognize some or all derivatives of UPC, EAN and JAN. These derivatives are UPC-A, UPC-E, EAN-8, and EAN-13. Both 2 of 5 addendum digits are supported. Addendum digits are those additional digits after the normal stop character.

The programming menu for UPC/EAN/JAN also provides several options to govern the transmission of scanned data. If the "UPC-E = UPC-A" option is enabled, the decoder will expand the six digits UPC-E code to ten digit UPC-A format with four zeros in the middle of data. The check digit will be recalculated from the modified data. The leading zero and the check digit from UPC labels can be suppressed separately.

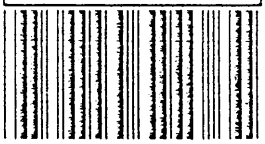
FORMAT



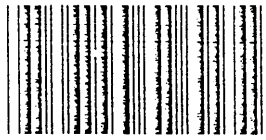
All



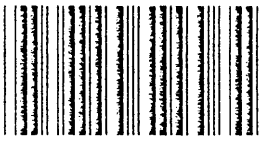
EAN-8 or EAN-13



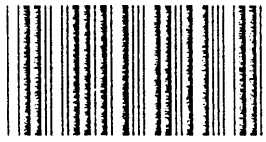
UPC-A and EAN-13



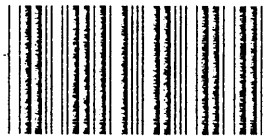
UPC-A and UPC-E



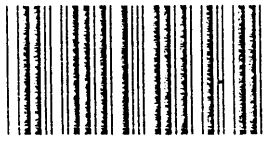
UPC-A



UPC-E

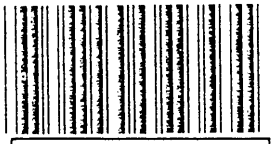


EAN-13

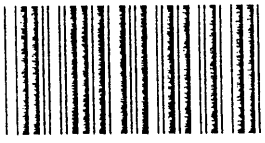


EAN-8

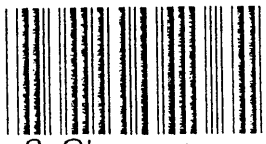
ADDENDUM



No

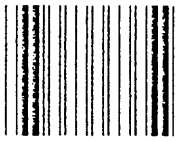


5 Characters

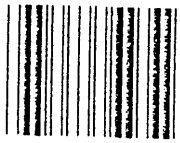


2 Characters

2 or 5 Characters



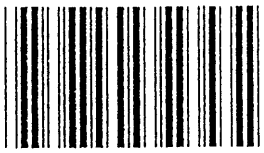
Start of configuration



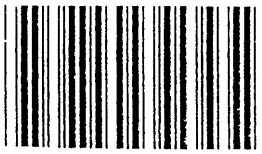
End of configuration

UPC/EAN/JAN PARAMETERS SETTING

FORCE UPC-E TO UPC-A FORMAT



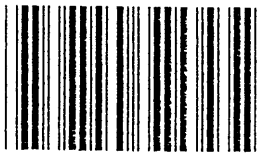
Yes



No

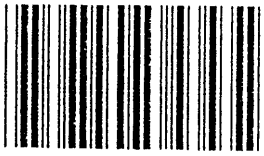
FORCE UPC-A TO EAN-13 FORMAT

Yes

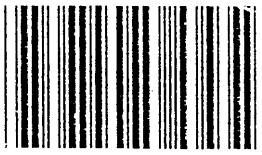


No

TRANSMIT UPC-A LEADING CHARACTER

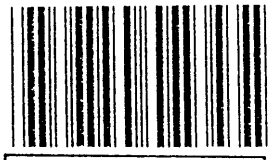


Yes

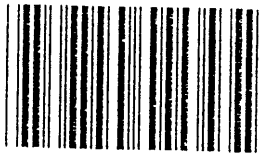


No

TRANSMIT UPC-A CHECK DIGIT



Yes



No

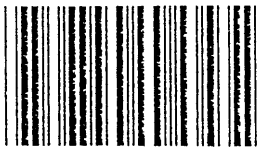
TRANSMIT UPC-E LEADING CHARACTER

Yes

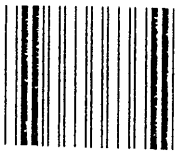
No

TRANSMIT UPC-E CHECK DIGIT

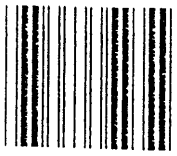
Yes



No



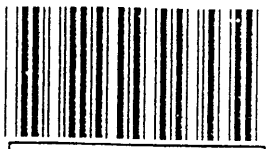
Start of configuration



End of configuration

UPC/EAN/JAN PARAMETERS SETTING

TRANSMIT EAN-13 CHECK DIGIT

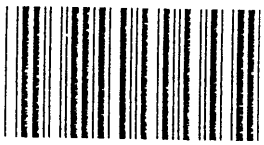


Yes

No

TRANSMIT EAN-8 CHECK DIGIT

Yes



No

The default options are:

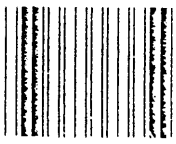
* Format : All
* Addendum : Not support
* UPC-E = UPC-A : No
* UPC-A = EAN-13 : No
* UPC-A leading digit : Transmit
* UPC-A check digit : Transmit
* UPC-E leading digit : Not transmit
* UPC-E check digit : Not transmit
* EAN-13 check digit : Transmit
* EAN-8 check digit : Transmit

CODABAR/MONARCH PARAMETERS SETTING

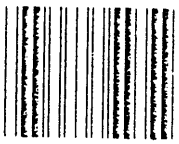
There are four options for the series CCD scanners to handle a variety of codabar codes with different Start/Stop character formats. Select the desired format by scanning the corresponding label.

1. **Standard** : The decoder will recognize all codabar codes with any permissible Start/Stop character combination.
2. **Concatenated** : The scanner will only recognize all concatenated Star/Stop character combinations.
3. **A B C** : The scanner will recognize the Start/Stop character combination designated by the American blood commission.
4. **Library (CLSI)** : The scanner will recognize the Start/Stop character combination designated by the computer library systems Inc. Space will be inserted to make the read data compatible with the CLSI standard.

You can also select the character to be used for transmission of the start and stop codes.



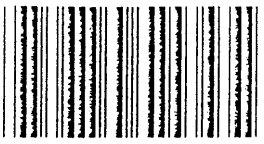
Start of configuration



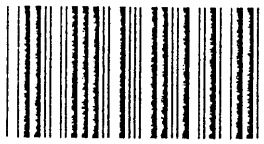
End of configuration

CODABAR/MONARCH PARAMETERS SETTING

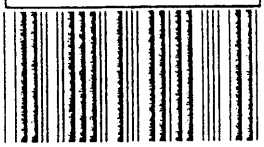
FORMAT



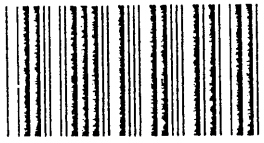
Standard



Concatenated

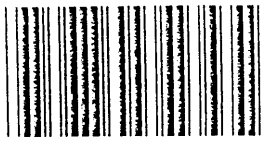


ABC

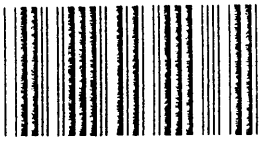


Library (CLSI)

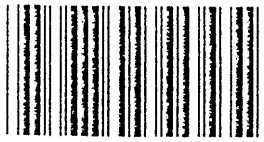
START/STOP CHARACTER TRANSMISSION



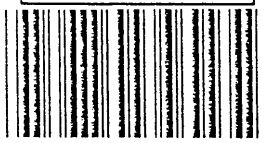
No



DC1 ~ DC4



A, B, C, D



a/t, b/n, c/*, d/e

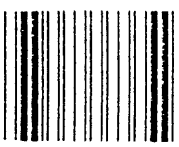
The default options are standard format and A, B, C, D for Start/Stop codes.

CODE 128 PARAMETERS SETTING

If a code 128 symbol contains an FNC 2 character, the scanner appends the information to a storage buffer (data not transmitted). The operation continues for all successive symbols which contain an FNC 2 character, with the messages being added to the end of previously stored messages. When a symbol which does not contain an FNC 2 character is read, the contents will be appended to the buffer, and then the entire buffer will be transmitted and cleared afterward.

You can disable this feature by scanning the "DISABLE" label on the menu under the heading "CONCATENATION" when it is more appropriate.

If the check digit feature is enable, you have the further option whether the check digit is transmitted or not.

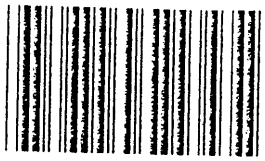


Start of configuration

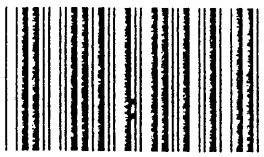
End of configuration

CODE 128 PARAMETERS SETTING

FNC 2 CONCATENATION

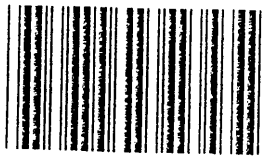


Enable

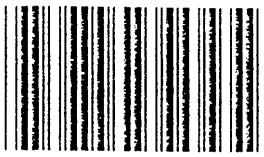


Disable

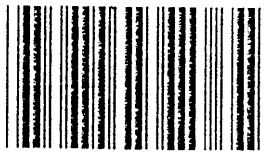
CHECK DIGIT



No

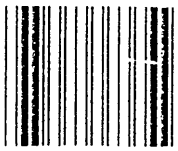


Calculate and transmit

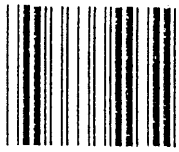


Calculate but not transmit

The default options are No FNC 2 concatenation, check digit computed but not transmitted.



Start of configuration



End of configuration

CHAPTER 5

LIMITED WARRWNTY

Hardware

The equipment is warranted to be free from defects in materials and workmanship for a period of one (1) year from the date of original purchase. Manufacturer agrees to repair or, at manufacturer's option, replace equipment supplied by manufacturer which proves to be defective in materials or workmanship. This warranty is limited to defects arising under normal usage and does not cover malfunctions or failures resulting from the misuse, abuse, neglect, alteration, modification, or repairs by other than manufacturer's authorized service facility.

Software

Title to software remains with manufacturer and is licensed to you for use with specific hardware. The software is warranted to conform to the written specifications provided by manufacturer. Manufacturer will provide corrective measures which are limited, at manufacturer's option, to repair, replacement or modification of the software code, or recommendation of a viable, alternative application that will enable you to work around the failure.

To obtain warranty service during the warranty period, you must notify manufacturer of your claim and present proof of purchase. REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE BUYER.

THE LIMITED WARRANTY IN THIS AGREEMENT IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING (WITHOUT LIMITATION) ANY WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND EXTENDS ONLY TO THE BUYER. IN NO EVENT SHALL MANUFACTURER BE LIABLE FOR LOST PROFITS OR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY THE EQUIPMENT OR SOFTWARE, REGARDLESS OF WHETHER MANUFACTURER IS ADVISED OF THE POSSIBILITY OF DAMAGES.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS OR EXCLUSION MAY NOT APPLY TO YOU THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VERY FROM STATE TO STATE.

APPENDIX A

CODE 39 FULL ASCII BAR CODE TABLE

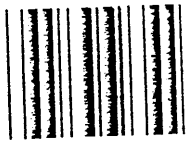
NUL	BS	DLE	CAN
SOH	HT	DC1	EM
STX	LF	DC2	SUB
ETX	VT	DC3	ESC
EOT	FF	DC4	FS
ENQ	CR	NAK	GS
ACK	SO	SYN	RS
BEL	SI	ETB	US

Start of configuration

End of configuration

APPENDIX A

CODE 39 FULL ASCII BAR CODE TABLE


SP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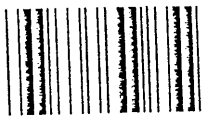
2


: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7


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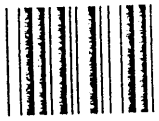
Start of configuration


End of configuration

APPENDIX A

CODE 39 FULL ASCII BAR CODE TABLE

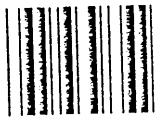

@

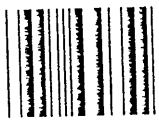

H

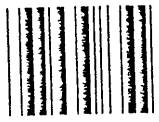

P

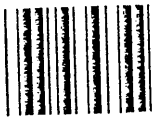

X


A


I

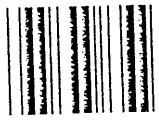

Q

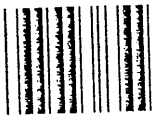

Y


B


J


R


Z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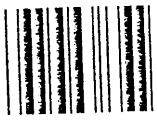
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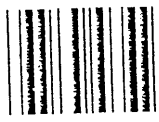
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G


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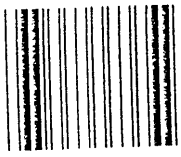
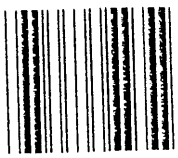

Start of configuration


End of configuration

APPENDIX A

CODE 39 FULL ASCII BAR CODE TABLE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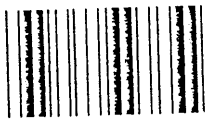
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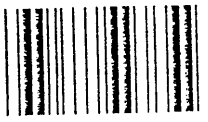
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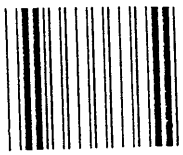
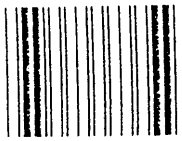

Start of configuration


End of configuration

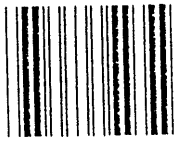
APPENDIX B

CODE 39 FULL ASCII CODE TABLE

ASCII	CODE 39	VALUE IN HEX		ASCII	CODE 39	VALUE IN HEX
NUL	%U	00		$	/D	24
SOH	$A	01		%	/E	25
STX	$B	02		&	/F	26
ETX	$C	03		`	/G	27
EOT	$D	04		(	/H	28
ENQ	$E	05		)	/I	29
ACK	$F	06		*	/J	2A
BEL	$G	07		+	/K	2B
BS	$H	08		'	/L	2C
HT	$I	09		-	-	2D
LF	$J	0A		.	.	2E
VT	$K	0B		/	/	2F
FF	$L	0C		0	0	30
CR	$M	0D		1	1	31
CO	$N	0E		2	2	32
SI	$O	0F		3	3	33
DLE	$P	10		4	4	34
DC1	$Q	11		5	5	35
DC2	$R	12		6	6	36
DC3	$S	13		7	7	37
DC4	$T	14		8	8	38
NAK	$U	15		9	9	39
SYN	$V	16		:	/Z	3A
ETB	$W	17		;	%F	3B
CAN	$X	18		<	%G	3C
EM	$Y	19		=	%H	3D
SUB	$Z	1A		>	%I	3E
ESC	%A	1B		?	%J	3F
FS	%B	1C		@	%V	40
GS	%C	1D		A	A	41
RS	%D	1E		B	B	42
US	%E	1F		C	C	43
SP	SP	20		D	D	44
!	/A	21		E	E	45
"	/B	22		F	F	46
#	/C	23		G	G	47



Start of configuration

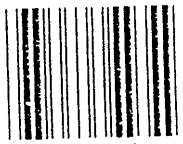


End of configuration

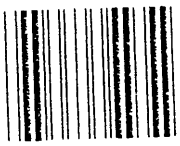
APPENDIX B

CODE 39 FULL ASCII CODE TABLE

ASCII	CODE 39	VALUE IN HEX	ASCII	CODE 39	VALUE IN HEX
H	H	48	d	+D	64
I	I	49	e	+E	65
J	J	4A	f	+F	66
K	K	4B	g	+G	67
L	L	4C	h	+H	68
M	M	4D	i	+I	69
N	N	4E	j	+J	6A
O	O	4F	k	+K	6B
P	P	50	l	+L	6C
Q	Q	51	m	+M	6D
R	R	52	n	+N	6E
S	S	53	o	+O	6F
T	T	54	p	+P	70
U	U	55	q	+Q	71
V	V	56	r	+R	72
W	W	57	s	+S	73
X	X	58	t	+T	74
Y	Y	59	u	+U	75
Z	Z	5A	v	+V	76
[	%K	5B	w	+W	77
\	%L	5C	x	+X	78
]	%M	5D	y	+Y	79
^	%N	5E	z	+Z	7A
_	%O	5F	{	%P	7B
`	%W	60	|	%Q	7C
a	+A	61	}	%R	7D
b	+B	62	~	%S	7E
c	+C	63	DEL	%T	7F



Start of configuration



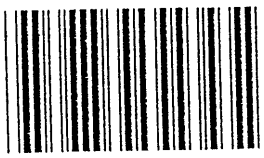
End of configuration

Bar Code Length Setting

The default code length for Code 39, Code 128, and Codabar is fixed to 6 digits to prevent ghost scan. It can be set at minimum 3 digit and maximum 32 digits. The procedure is as follows.

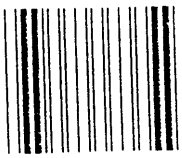
1. Scan "Start of configuration" label.
2. Scan "Minimum" label.
3. Scan Numerical digit(s) from ASCII table (at most 32). Scan "Set" label.
4. Scan "Maximum" label.
5. Scan numerical digit(s) from ASCII table (at most 32). Scan "Set" label.
6. Scan "End of configuration"

Minimum



Maximum

Set



Start of configuration

End of configuration